

CACTUS AND SUCCULENT JOURNAL

VOL. XXXIII NOVEMBER-DECEMBER, 1961 No. 6



Fig. 102. *Myrtillocactus geometrizans* in fruit east of Huizache, S. L. P., Mexico. Photo by Ed and Betty Gay.



CACTUS AND SUCCULENT JOURNAL

Published and owned by the Cactus and Succulent Society of America, Inc., 132 W. Union St., Pasadena, Calif. A magazine to promote the Society and devoted to Cacti and Succulents for the dissemination of knowledge and the recording of hitherto unpublished data in order that the culture and study of these particular plants may attain the popularity which is justly theirs. North and South America \$4.00 per year; foreign \$4.00 by money order. Mail application to SCOTT HASELTON, Editor, 132 West Union Street, Pasadena, California. Editorial Staff: The Entire Society. Mailed as Second Class, postage paid at Pasadena, Calif. Published bi-monthly and mailed about the 20th of every other month.

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No. 6

CONTENTS

Editorial	Scot. E. Haselton	162
A Cactophile's Tour of Mexico, Part II.	Ed and Betty Gay	163
A Convention Bus Trip to the Tehuacan Area.	Nick Bokarica	168
Some Interesting Texas Cacti.	Richard O. Albert	169
From England	John G. Stratham	171
Desert Flowers Under Glass, Chapter 23.	Marjorie E. Shields	172
Index—Center Section	Following page	174
Cultivated and Native Agaves in the Southwestern United States.	August J. Breitung	179
Spotlight on Round Robins	Mrs. Gladys H. Panis	182
From Illinois	Donna Higgins	184
Cereusly Speaking	John E. C. Rodgers	185
Questions and Answers	Harry Johnson	186
Diehl's Cactus Garden		187
Culture of Succulents in Ohio	Victor H. Ries	188
Binding Your Own Journals	J. Reese Brown, Jr.	190
President's Message	Edward S. Taylor	191

STATEMENT OF THE OWNERSHIP, MANAGEMENT, CIRCULATION, ETC., REQUESTED BY THE ACT OF CONGRESS OF AUGUST 24, 1912. Of Cactus and Succulent Journal, published bi-monthly at Pasadena, for October, 1950. State of California, County of Los Angeles.

Before me, a notary in and for the State and county aforesaid, personally appeared Scott E. Haselton, who, having been duly sworn according to law, deposes and says that he is the Editor-Publisher of the CACTUS AND SUCCULENT JOURNAL, and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management (and if a daily paper, the circulation), etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, embodied in section 411, Postal Laws and Regulations, printed on the reverse of this form, to wit:

1. That the names and addresses of the publisher, editor, managing editor, and business managers are: Scott E. Haselton, 132 W. Union St., Pasadena, Calif.

2. That the owner is: CACTUS AND SUCCULENT SOCIETY OF AMERICA, INC.

3. That the known bondholders, mortgages, and other security holders owning or holding 1 per cent or more of total amount of bonds, mortgages, or other securities are: None. Cactus and Succulent Society is a nonprofit organization and issues no stock.

GLENN O. GRIFFIN, Notary

Sept. 22, 1961

BINDING JOURNALS

This year we will bind Journals together with those sent in last year. Mail your magazines (book rate) complete with indexes to Cactus Journal, 132 W. Union St., Pasadena by Jan. 30, together with \$3 each for Vols. 31, 32, and 33. For other volumes send \$4 each. We will endeavor to supply any missing issues at \$1 each but we cannot guarantee to do so.

ANNUAL MEETING

Sept. 17th, the Annual Meeting of the Cactus and Succulent Society of America was held at one of the most beautiful cactus nurseries in Southern California

—Tegelberg's Gardens in Lucerne Valley. Even the directions for reaching the high desert nursery are intriguing: "take the Old Woman Springs Road past the City of Lucerne Valley (pop. 500), and right on Camp Rock Road". Gil's nursery is on the high, dry desert where the air is pure and water is good and his plants are healthy and beautifully grown; the desert winds, blasts of summer heat, coyotes, and rabbits notwithstanding. About 100 people made the 80 mile trip and were well rewarded. We will say more about this ideal spot as soon as we obtain photographs.—S.E.H.

EDITORIAL

On January 1, 1962 we shall discontinue the wholesale of books by Abbey Garden Press. We will continue to supply books to Journal subscribers and the new list will be available about the first of the year. We will sell by mail only except by appointment; please send us a card several days in advance if you wish to make an appointment.

Notwithstanding reports, the Journal will be continued indefinitely and we hope to travel and meet many of our cactus friends and to gather new material for the Journal while enjoying partial retirement. Thirty-three years ago your editor started the Journal as a hobby and it will be continued on the same basis. We were looking back on some of our records and in October 1933 we billed the Society \$229.45 for an issue of the Journal. Now the costs are more than five times that amount even by using the facilities of my own printing plant. The September-October issue was the first time in 33 years that the circulation reached the 2000 mark and even with the ever mounting costs we can maintain its present standard. The Cactus and Succulent Society of America renders no services to the Journal but they do put on a convention every other year in which about 2½% of the membership participates. Most specialized Journals are short lived because with the ever changing officers and policies it is impossible to maintain a non-interrupted periodical. We realize that our Journal is not perfect but its format has been constant since its first issue in 1929 and all of the articles have been contributed by its friends. Let's continue to make it an even 50 years!

SCOTT E. HASELTON

A Cactophile's Tour of Mexico

By ED AND BETTY GAY

PART II

QUERETARO "is the city of opals and other gems. The entire place is one great monument of charming colonial buildings. Here the Mexican Independence was born. The impressive aqueduct that salutes the visitor as he approaches the city was completed in 1735 and has been in operation up to the present day. Its monuments as well as its public buildings are linked to the history of Mexico itself." From this historical city there remained only a half-day's journey to Mexico City itself, but during that short trip we came upon *Mammillaria magnimamma*, *Coryphantha cornifera* and a new *Stenocactus* type. It had been our hope to take a detour from this point to Cadereyta, to visit the famous Schmoll cactus gardens and to meet the present owner, Mr. Wagner, but time was drawing short and we decided to save that pleasure for another trip.

MEXICO CITY, capital of Mexico, "the 'City of Palaces', with five million inhabitants, is a cosmopolitan center larger and more sophisticated than most cities in the United States. Side by side with the palaces and remains of ancient pyramids are smart shops with the finest merchandise from all over the world, restaurants for gourmets, the best of luxury hotels." There is also the Sociedad Mexico de Cactologia, an organization that merits our Society's admiration and respect for the warm-hearted enthusiasm of its members as well as for the very substantial contributions which they have made to the field of scientific knowledge concerning cacti and other succulents.

Mr. Dudley Gold, the treasurer of the Society, and Dr. Helia Bravo of the University of Mexico, its president, were kind enough to take time from their busy lives to conduct us through the University's Botanical Gardens as soon as we arrived in the City. We were also fortunate in being permitted to join a field trip of the Society, the weekend before the convention began. Mr. Manuel T. Castellá, Mr. Antonio Barberena, Dr. Jorge Meyrán, Mrs. Barberena, Mrs. Meyrán, and their charming families were our hosts. Our two-day trip covered an area northeast of Mexico City, including Tecozautla, Ixmiquilpan, and an area of natural hot springs and geysers known as Pozos de Vapór.

The cliffs at Rodriguez Dam, our first stop, yielded excellent specimens of *Mammillaria pringlei*. Near Tecozautla was a hill known as Cerro Colorado. Dr. Meyrán mentioned having once counted twenty-one species of cacti on this

hill, and we succeeded in locating a good many *Stenocactus pentacanthus* (including crests), of the twenty-one. Most outstanding for us were *Thelocactus leucacanthus*, *Coryphantha clava* and *Mammillaria compressa*. Not only was *M. compressa* growing in the largest clusters we had ever seen, often three or four feet in diameter, but many individual heads were most unique. For example, we found a crested one and another with tortuous spines up to five inches in length.

At Pozos de Vapor the next day we located *Mammillaria kewensis*, *Dolicothele magnimamma*, and *Pachyphytum brevifolia*. Between hill-sides covered with *Lemaireocereus dumortieri* ran the river which is fed by the hot springs. One of these is a perpetual geyser of sufficient force to operate a power plant providing electricity for Tecozautla. The valley is an impressive sight, with the new steam plant and many other springs still sending up clouds of steam.

After numerous other stops, including one where *stenocactus* was so thick it literally carpeted the ground, we arrived back in Mexico City late Sunday evening in a driving rainstorm, tired but with many warm memories of two of the most delightful days of our entire trip.

The convention began, unofficially, on Tuesday evening, and was adjourned the following Monday night. Thursday morning, July 20th, found us homeward bound. We had seen Betty's mother off on a plane for Boston on Tuesday, and had persuaded a fellow member of the Los Angeles Cactus and Succulent Society, Mrs. Kathryn Sabo, to take her place on the return trip.

AGUASCALIENTES, "founded in 1575, is the capital of the state of the same name. It is an important mining and railroad center, and also has the attractions of its hot springs and good climate. Vegetation in this area is abundant and luxuriant." We were "on our own" with regard to finding cacti among this luxuriant vegetation, because it had been our intention to return by way of Guadalajara. Members of the Mexican Society had changed our minds by pointing out that paving had very recently been completed on the road from Durango to Máztlan, and that this was a route of such scenic beauty and interest to cactus lovers that it would be a shame to miss an opportunity to travel over it. Without the benefit of advance study, in the Aguascalientes area we did find *Coryphantha clavata*, *C. bumama*, *C. cornifera*, *Stenocactus* species, several

species of small *Mammillarias* which we haven't yet succeeded in identifying, as well as such now-familiar plants as *Myrtillocactus* and *Ferocactus*. In some areas *Stenocactus* was once more really prolific, so that it wasn't easy to step between the plants. With so many specimens present, it isn't surprising that we succeeded in finding a few crests, too.

DURANGO "has the appearance of an antique Castilian city. In spite of its agricultural, industrial and commercial development it has preserved the old world appearance which makes it attractive and dignified. The future of the city as a center of commerce and the tourist trade could not be brighter, since it is situated at the crossroads of two important national arteries: the Mexico City-Ciudad Juarez highway, and that which comes from Laredo through Monterrey, Saltillo and Torreon, to Mázatlan, uniting the coast of the Gulf of Mexico with that of the Pacific Ocean." As we have said, it was the new Mázatlan highway that had brought us to Durango, and we set forth on it early Saturday morning. We soon found ourselves climbing, and at times that day were higher than 9000 feet, though nightfall found us in Mázatlan, at sea level.

There are few communities along this new road, the chief one being the lumbering town of El Salto. One of the main attractions of the area for us was the possibility of locating *Mammilopsis senilis*, that white-spined cousin of *Pediocactus* which shuns the lower altitudes, preferring to grow in a mulch of pine needles. It also prefers well-drained locations on the sides of cliffs, which makes its capture sometimes a challenge. After a couple of fruitless searches, a steep climb up some southward-facing precipices was successful, and we found several beauties, with plump green bodies showing between the interlaced white spines. Like most of the plants we saw on this trip, they were in fine condition because of recent rains.

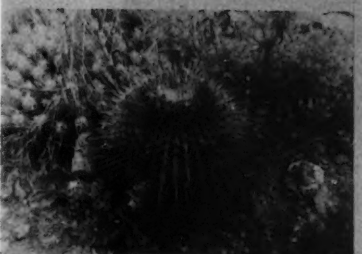
As we began the steep, winding descent to the west, we began to see new plants—Agaves, *Beaucarnea*, a red-flowering *Heliocereus*, *Echinocereus polycanthus*, among a luxuriant growth of trees, shrubs and vines of many kinds, as well as bromeliads, mosses and ferns. As promised, the views through the trees and into the valleys

were magnificent. A heavy rain began to fall about midafternoon, so that exploration of the lower slopes of the mountain will have to wait until our next trip. One thing that startled us as we drove along was the angle of the cornfields, which were planted right up the sides of the mountains on what looked like impossible slopes.

MAZATLAN lies "on a picturesque peninsula overlooking the calm water of Olas Altas Bay. It does much shipping business in gold and silver, fruits and sugar, tobacco and vegetables. We are attracted by the abundance of game in the neighborhood, and the inexhaustible supply of fish for the reel and rod. The swimming beaches of this beautiful port are countless. Mázatlan offers sites for exploration for days or weeks at a time." A cactophile, too, could find exploration opportunities for weeks at a time around Mázatlan. Our route lay directly north through country which we had covered on a previous trip, but we were confident that we would find much that would be new and interesting. As it developed, we did not see as much as we had before, because our first visit had been during the dry season and exploration was not impeded by the myriad of bushes and vines that now made the country so verdantly beautiful, but so difficult to penetrate. We did find a *Plumeria* which we had not noticed before, and a monstrose *Pachycereus pectenaboriginum* stem, as well as good specimens of *Cephalocereus leucocephalus*. Just north of Los Mochis appeared *Ferocactus herrerae*, and we saw *Pereskiaopsis blakeana* in bloom. Exasperatingly, we couldn't locate a single stem of a small yellow-flowered clustering *Mammillaria* which had seemed very plentiful before, and of which we wanted a few more specimens for further study and identification.

GUAYMAS "is really a fisherman's paradise. The beauty of Guaymas, set in its own extensive bay, is breathtaking. White and pastel houses cluster around the clear blue water. This bay has been compared to the Mediterranean, as equally beautiful." This is also the zone where Sonoran desert vegetation intermixes with the more tropical plants occurring farther south. *Lemaireocereus martinezi* has given way to *L. thurberi*. *Pereskiaopsis* and *Nopalea* have disap-

Fig. 103. Left to right. Top row: *Lemaireocereus marginatus* (naturalized) near Ciudad del Maiz S.L.P. *Astrophytum myriostigma* and *Coryphantha* sp. east of Huizache, S.L.P. *Neogomezia agavoides* near Tula (5 coins, 5 plants—try and find them). Second row: Tula. *Lophophora williamsii*, Huizache, S.L.P. *Echinocactus ingens*, Huizache, S.L.P. Third row: *Thelocactus fossulatus* and *Stenocactus phyllacanthus* near S.L.P. *Pelecypora aselliformis* near S.L.P. *Mammillaria roseoalba* and *Opuntia robusta* near S.L.P. Fourth row: *Ferocactus melocactiformis* near S.L.P. *Ferocactus latispinus* and *Coryphantha clava* near S.L.P. *Lemaireocereus dumortieri* south of S.L.P. Fifth row: *Mammillaria gigantea* north of Queretaro, Qro. Agave fence north of Queretaro, Qro. Bottom row: *Ferocactus melocactiformis* near Rincon, Aguas. *F. latispinus* near Aguas Calientes. *Mammillaria melanocentra* south of Fresnillo, Zacatecas. Photos by authors.



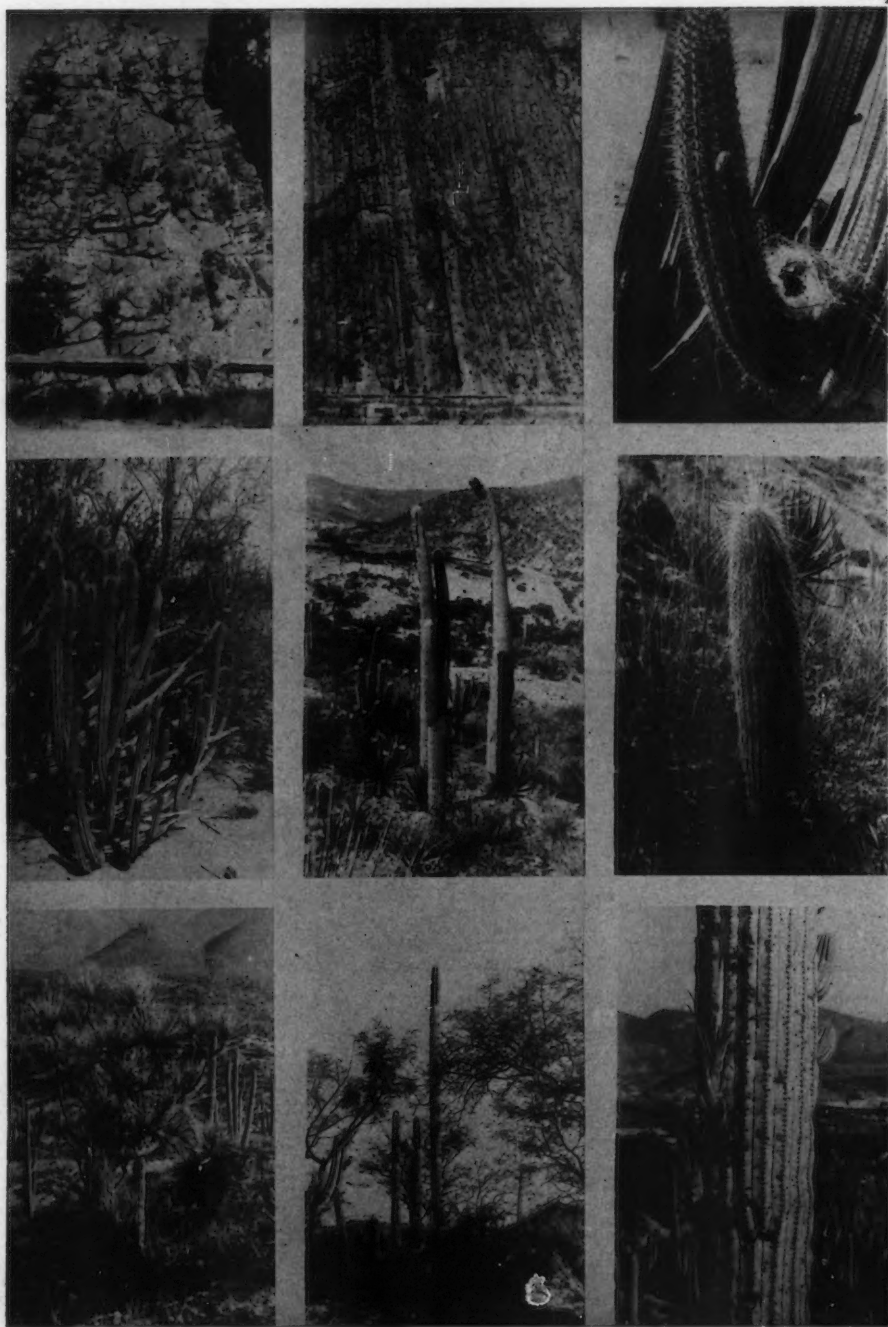


Fig. 104. Left to right. Top row: *Agave victoriae-reginae* and *Hechtias* in Huasteca Canyon near Monterrey, N.L. Huasteca Canyon west of Monterrey, N.L. (note the car in the foreground). *Lemaireocereus thurberi* with bird's nest, near Guaymas, Sonora. Second row: *Lophocereus schottii* with unusual slender stems, and many ribs, at the beginning of its range, near Guaymas, Sonora. *Cephalocereus hoppenstedtii* south of Tehuacan, Puebla. Juvenile plant of same. Bottom row: *Beaucarnea stricta* south of Tehuacan, Puebla, with *Cephalocereus macrocephalus*. Photos by Ed and Betty Gay.

peared, but *Rathbunia alamosensis* is still found among the *Lophocereus schottii*. *Carnegeia gigantea* and *Pachycereus pectenaboriginum* grow side by side. There are various species of *Echinocereus* and *Mammillaria* which are found only in extremely limited ranges in this region.

North of Hermosillo, now in typical Sonoran desert country, we came upon *Mammillaria microcarpa*, *M. mainae*, and other old friends. To our delight, we also found a plant we have unsuccessfully sought for several years—*Neoevansia diguetii*, with its slender, whip-like stems, white nocturnal flowers and dahlia-like tubers. West of Santa Ana, as dusk fell, we enjoyed seeing a number of *Ferocactus covillei* with complete crowns of red flowers. After spending the night in the little town of Sonoita, we began the final lap of our journey early Tuesday morning. The hundred and thirty comparatively barren miles of the "Camino del Diablo" from Sonoita to San Luis, on the Colorado River, were behind us before the heat of the day became uncomfortable, and soon afterwards we were climbing into the mountain range of the Sierra de Juarez west of Mexicali.

TIJUANA "the famous city bordering the United States, a tourist center where there are all sorts of diversions on a grand scale—race track, Jai Alai palace, luxurious bars, restaurants and cabarets, but also with a productive economy which has made Tijuana an example of industry and progress." The important feature of Tijuana to us on this Tuesday morning was its status as a border city; we were beginning to feel eager to be home again, to see how our plants had made the trip, to review all of our pictures, and—to begin planning the next journey to the high plateau of Mexico!

SLIDE LENDING LIBRARY

The Slide Lending Library was created several years ago for the exclusive use of those Cactus and/or Succulent Societies that are affiliated with the Cactus and Succulent Society of America, Inc.

At a recent Executive Board meeting, the rules governing the use of these slides were revised. The new rules are:

1. Any Cactus and Succulent Society that is affiliated with the Cactus and Succulent Society of America, Inc., may borrow them.
2. Request at least two weeks ahead of time the set you desire and give the date of showing. Please state if you can use an alternate set and which one in case the set you desire is in use.
3. The set loaned to you must be returned within one week after your date of showing. Please return by parcel post insuring them for \$5.00.
4. A deposit of \$5.00 must accompany your request.
5. A charge of \$1.00 will be made to cover the cost of handling.
6. When the slides are returned to the Slide Lending Library, your deposit (less the \$1.00 handling charge) will be returned to you.

Rule 5 is new and effective this date. The few cents left over after postage and insurance have been taken

out will go into an operating fund for the Slide Lending Library. It is hoped that we can finance new slides and increase the number of sets by this method.

The following sets are available:

No. 1. California Cacti and other Succulents.

No. 2. Baja California, Mexican and South American Cacti.

No. 3. Orchid Cacti, Miscellaneous Cacti and Succulents.

No. 4. Orchid Cacti.

No. 5. Arizona Cacti and National Parks.

A set of "Aloes of South Africa" is in preparation and will be announced shortly when available.

Please mail your requests for slide sets to

George G. Glade
7600 Verduga Crestline Dr.
Tujunga, California

CACTUS BOOKS

I have been collecting books (in the English language) pertaining to cacti for twenty-one years and now probably have one of the largest collections of cactus literature in the East. Over the last year it seems as if most of the older and rarer volumes (pre-World War II) have been swept off the market. Books such as the original Britton and Rose, Houghton's "The Cactus Book", Shreve's "The Cactus and Its Home" and Higgin's "Our Native Cacti" have become rare books and collector's items. Indeed, many of the Journal's old publications such as Van Laren's "Cactus" and Craig's "The Mammillaria Handbook" are now seldom offered for sale (the price for the former, for instance, is now somewhere between \$30 and \$60).

One reason for this is the tremendous interest in cacti in Europe. England alone boasts two Cactus and Succulent societies with an extremely large and active membership. Their National Society now contains about 65 branch groups and its membership is in the thousands. The effect of all this is that most of the older cactus books have disappeared from the market.

I have wished that the Journal would someday publish a comprehensive list of all the cactus books published in this country. A similar article pertaining to English books was included in the Journal some years ago.

Richard Russell
New York

CACTUS JOURNAL—COMPLETE SETS

We are glad to announce that we can supply unbound sets of Vols. 1 to 30 inclusive for \$150.00. Some issues show slight fire damage but all copies are readable and are a priceless collection of material. These can be obtained on a \$10 a month plan but it is necessary to order promptly while they are still available. The first of the year we will be able to supply odd copies at \$1 per copy if available from the broken sets.

CACTUS SOCIETY

132 W. Union St.

Pasadena, Calif.

AFFILIATES

Those affiliates in which ALL of its members subscribe to the Journal at the club rate must have the renewals in by Dec. 31st according to the agreement. The purpose of the club rate is to receive all of the renewals at one time which saves much detail work. Renewals received after Jan. 1 are \$4.00 a year and even then we cannot guarantee to furnish back issues.

SUSTAINING MEMBERS

Shirley Start
J. Robert Walton
Mrs. Clyde Walton

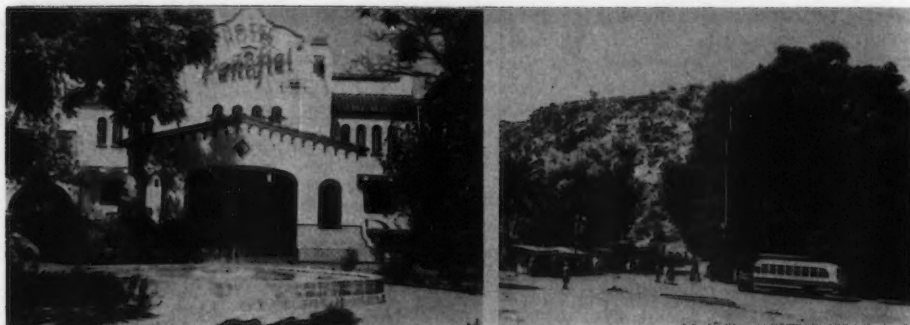


Fig. 105. Left: Hotel Penafiel at Tehuacan, Puebla. Right: Tule tree at San Lorenzo, Puebla. Photos by Ed and Betty Gay.

A CONVENTION BUS TRIP TO THE TEHUACAN AREA

NICK BOKARICA

This trip was planned as a two day field trip from Mexico City, leaving Saturday at approximately 8 a.m. with the idea of spending that Saturday night in the world famous Hotel Penafiel, adjacent to the town of Tehuacan, and continuing until we returned to the Hotel Del Prado in Mexico City the following Sunday evening in time for dinner.

There are located in Tehuacan the greatest mineral springs in Mexico, where 90% of their bottle waters are processed. Tehuacan is a city located approximately 159 miles from Mexico City to the southeast and is the entrance way into the most famous cactus country in the world. This is not only the opinion of the writer but also expressed by Dr. Helia Bravo H. our guest and fellow cactophile enthusiast. As she said, "There are many more areas yet to be explored in this area and new species and varieties will show up, discovered by botanist and collectors in the future."

After passing through the town of Tehuacan and climbing up to the first mesa or plateau, ten or fifteen miles away from the town, we started to enter a new world. Immediately there appeared clumps of *Echinocereus* of several varieties, *Ferocactus ingens* and *Yuccas*. Many varieties of *Agave* also *Beaucarnias*; then for the next twenty miles or more there started to appear forests of *Cephalocereus hoppenstedtii*.

Stopping near an Indian village near the pueblo of Teoltitlan on a graded shoulder of the highway the American mavericks and conventioners had a box lunch, including soft drinks and bottled mineral water. After lunch they hit the open mountain sides in search of whatever cacti they could find to photograph and discuss.

I, personally, had the pleasure of seeing large clumps and single specimen of *Ferocactus grandis*, enormous clumps of *Echinocactus robustus*, 4 or 5 feet across and 2 to 3 feet tall. *Mammillaria sphaelata* was all over the area just like quack grass or dandelions on our lawns in the U.S.A., only under bushes and *Agaves*.

Several nice margined leaved *Hechtias* were about and the *Coryphanthas* could hardly be missed and the following *Mamm.* were seen peeking out of bushes and edges of *Agaves* and the native shrubs: *Mamm. karwinskiana*, *Mamm. mystax* in one of its variations, *Mamm. napina*, *Mamm. viperina* in one of its forms, *Mamm. elegans* in one of its variations singular rather than cespitose, and a rather tiny *Mamm. conspicua* and *Cephalocereus hoppenstedtii* were everywhere. *Beaucarnias* were in blossom and many beautiful specimens stood out among the *Cephalocereus hoppenstedtii*.

After calling our group together we boarded the bus again. As we traveled down the road for about twenty

or thirty miles we passed continuous stands or forests of *Cephalocereus macrocephalus*, *C. polylophus*, *C. chrysacanthus* and several varieties of the above mentioned. Among these giants stood *Ferocactus grandis*, *Mammallarias* of several varieties and *Bromeliads* growing on the side of the tall cacti. Wherever a woodpecker or other birds had filled a hole high on the side of the cacti with grasses, limbs and other debris, it made perfect conditions for growth of *Xeophytic* plants.

It was getting to be about 4 p.m. and 80 or more miles back to our Hotel at Tehuacan so it was time to head the tour back to the oldest tourist hotel in Mexico, Hotel Penafiel, at Tehuacan for the clean up before dinner. The cocktails were served free by the hotel manager and there was a wonderful Mariachi band and singers for entertainment before dinner. The hotel would be a story by itself some other time. Sunday morning was for Church services, then we traveled leisurely back to Mexico City stopping a few places in small towns for shopping for baskets, zarapas, pancho's, etc. We arrived at about 6:30 p.m. at the Hotel Del Prado in time for dinner at 8:30 and to bed at the end of a two day trip that will be remembered by everyone for the rest of their lives.

SUNSET SUCCULENT SOCIETY SANTA MONICA, CALIF.

The Sunset Succulent Society, which is affiliated with the Cactus & Succulent Society of America, was formed early in 1961 and is now enjoying a growing, enthusiastic membership from the western portion of Los Angeles county.

We meet the 2nd Thursday of each month, 8 P.M. at Joslyn Hall, 7th & Wilshire Blvd., Santa Monica.

We have been privileged to have many interesting and instructive illustrated talks and lectures by such well known authorities as Franklin Crosby, Don Skinner, Edw. Gay, Jack Morris and others. Some of our members, too, we find are gifted along that line so, all in all, we are off to a fine beginning and we have formulated some interesting plans for the future.

To anyone interested in Cacti and other Succulents, we extend a cordial invitation to visit us.

Mrs. Geo. A. Byl, Sr.
945 14th Street
Santa Monica, California

"Your mention of readers who criticized you for too much respectable material brings me out of hiding. Of course, that gives you international scientific status and a permanent circulation. For me you are O.K. even if Marjorie Shield's accomplishments 'down under' make me cry.

Victor Greiff, Engineer
New York



Fig. 106. *Homalocephala texensis* with its bright colored fruit.

Some Interesting Texas Cacti

By RICHARD O. ALBERT

Homalocephala texensis

This plant is commonly called devil's head over much of its range, but sometimes the more general term devil's pincushion is used to designate this plant as well as numerous other species. The Mexicans call it biznaga, and here in South Texas at least this name means quite specifically this particular plant. This may be variously spelled biznaga, visaga, biznagre, etc., as many of the less literate Mexicans cannot distinguish between b and v, and many Spanish common names vary from place to place with the change of a few letters or a syllable or two. In some areas, however, biznaga means any medium sized barrel type cactus, while the diminutive term biznaguita means any small round cactus as *Stenocactus*, *Mammillaria*, etc. The Mexicans also call it manca caballo or manca de caballo, as horses are sometimes crippled by getting some of the very thick strong spines imbedded in the foot.

I think this cactus is very unique and has more character than most other cacti that I know. You might say that it is one of my favorite species. It is a fairly good-sized plant, and yet may be quite difficult to find—many are found only after they are stepped on. It is a beautiful plant, and it is very showy when in flower or fruit. I think of it as being very masculine, as it is so well muscled in appearance, with prominent ribs and very strong stiff spines and a very hard tough body so that it can grow out in the open without any shelter at all and yet not be afraid of injury.

The stem (which is sometimes used in making candy) is so hard and tough that it can be stepped on without making any perceptible dent

into it. Even horses and cattle can step on it and usually leave only a slight bruise or perhaps a small cut. The average sized specimen will measure from 12 to 18 cm. in diameter and from 0 to 10 cm. in height. Quite frequently the top of the plant will be flush with the surface of the ground, and in that case the body of the plant will of course be deeper and more difficult to find. Occasionally the bulk of the plant will be above ground, but usually the specimen will be about half way between these two extremes. I have one devil's head that is 25 cm. in diameter and 15 cm. high, but that is far larger than usual. They must get larger than this, but some stories that I have heard of plants up to two feet in diameter—well, I will have to see that before I believe it.

The stem is very prominently ribbed, with from 12 to about 25 ribs on mature plants, the usual number being 13. These ribs are rather broad at the base and acute at the edge, and are about 1.5 to 2 cm. in height and about 2 to 2.5 cm. apart. As the plant grows older, additional ribs are usually supplied by one rib dividing into two, rather than by an extra rib being added between two existing ribs.

The areoles are about 3 cm. apart along the ribs, and may at times be somewhat recessed. They are rather large, about 1 to 1.3 cm. in length and nearly as wide. They are covered with a thick layer of cream-colored wool near the center of the plant, but most of this wool is lost as the areole ages.

The spines are erect and blood-red as they form in the young areoles, but soon spread and mature and are rather brownish-tan or even gray

in color. These spine clusters form a quite formidable armament, and can inflict deep and painful punctures or lacerations on the unwary. The spines are very strong and tough, rather prominently ringed along their entire length, and are quite rigid yet so resilient and springy that they do not break readily, even when the plant is stepped on.

The single central spine is flattened dorso-ventrally and is the largest, varying from 2 cm. in length in some individuals to a maximum of about 7 cm. in others. It is more or less depressed, and may sometimes be straight but more usually is recurved downward. Rarely, it may even be somewhat hooked at the end, or sometimes may be twisted or curled in various directions. This twisting and curling seems to be brought about by a heavy crop of fruit at the center of the plant while the young spines are being formed. I have one specimen that has the central spine divided into two separate spines in most of the areoles, some spines are normal or have a longitudinal groove along them, while a few are grooved at the base with the distal half of the spine divided into two separate spines. The central spines on most specimens are about 3 or 4 mm. in diameter, but an old cactus buddy of mine (Ted L. Austin) found a plant in Tamaulipas that has central spines 8 and 9 mm. in diameter—by far the widest I have ever seen.

The radial spines are usually 6 in number, with 3 spreading on each side, and all may be somewhat appressed and recurved. These are smaller than the central spine, with the middle one being the largest of the three. They are still worthy of considerable respect, however. Some plants have an additional radial spine sticking upward from the north end of the areole, or there may be 4 radials on each side.

To emphasize the strength and efficiency of these spines, I will relate the following incident that happened to a friend of mine (Guadalupe G. Garza) when he was about 12 years old. He had the misfortune to step on a biznaga while out playing one day, and one of the spines stuck through the sole of the leather shoe, all the way through his right foot about an inch proximal to toes 3 and 4, and out through the leather of the top of the shoe. In this instance the spine broke off, and the boy's father had to cut the top of the shoe and pull the spine on through with a pair of pliers. So you see, these spines really can be dangerous.

As I stated, these spines are very hard and wiry, but on two occasions I have found biznagas that had each spine neatly trimmed off at the base, cut as though by a chisel. This was the work of packrats—they must have diamond-edged teeth to cut these spines off so cleanly, or else they carry hack saws around with them. I

have no idea what they do with the spines.

The flowers are rather large, being about 5 or 6 cm. in diameter. They are pink to darker pink in color, and when 5 or 10 are open at one time they make a beautiful boquet. The petals have deeply fringed edges, and are quite a bit darker near the center of the flower. The flowers close at night but usually open on two or three successive days. The perianth is persistent, though I have seen a specimen in which it was shed. The stamens are yellow with much pollen. The pistil has a white style and 11 red stigma lobes. I have one plant that bloomed for the first time this year. It had only two flowers, but both were orange instead of pink—the only orange flowers I have seen.

The fruit is bright green as it grows, and enlarges up to about 5 cm. in diameter, it usually being a little taller than wide. Soon it becomes a bright pink or red, and when there are a number of these ripe at once I feel that the plant is at its showiest. In wet years the fruit is quite juicy and sweet, and eventually bursts open across the side or the top. The pulp is very pale pink in color and has a sticky yet somewhat crystalline consistency. In very dry years the fruit is dry and much less tasty, and usually does not burst open at all.

The seeds are rather large, measuring about 3 mm. in greatest dimension. They are rather bean- or kidney-shaped, with a prominent hilum, and are black. They germinate readily, and form little fat seedlings with fat cotyledons. The first areoles are formed on low nipples, but by the time the plant is about 8 mm. in diameter there are already about 5 low ribs being formed.

The biznaga prefers a low sandy hill in the mesquite and scrub brush country where the brush is rather open, and only occasionally will it be found in the lower areas where the soil is much heavier and the brush is much thicker. It sometimes grows under the protection of a thorny shrub or a prickly pear, but more commonly it grows in the open with the Indian blanket and Texas star and bluebonnet around it and the broiling sun full in its face. It grows in rocky soil also, but there, quite logically probably, it presents more of its body above the ground surface. Wherever it grows, the roots are very strong and fibrous, and hold the plant very securely anchored. One or more tap roots up to 10 cm. in length are almost always present. The plant is solitary, with individual plants usually being several to many meters apart. Occasionally the plant will have several growth centers from dichotomous division. If the growth center of a plant is destroyed, several pups are produced at the different areoles and so a cluster will develop. It apparently does not cluster unless the original growth center is lost or injured.

I found one good-sized devil's head with the growth center destroyed from an unknown cause—there was a vertical hole directly through the center of the plant. I brought this plant home to see what it would do, and the first year it did nothing except get a little fatter. The second year it produced one flower from an areole nearest the center of the plant, and subsequently developed fruit. The third year, a pup grew out of this same areole, and as this grew I noticed others growing around it, so that now it has 9 heads all growing out of that one original areole or from the base of the original pup.

This monotypic genus has a rather wide range, being found over most of Texas, northern Mexico, and New Mexico. *Alice, Texas*

FROM ENGLAND

It seems a long, long while since I wrote to you last. Reading of the fire damage, in the past two Journals, I felt I really must write and tell you how very sorry I am about it. I very sincerely hope that your work and your business may all be greatly strengthened and increased now that you have come through your "ordeal by fire". Each issue of the Journal I receive, eagerly awaited, is eagerly read, every word of it . . . and then carefully stored away until I have three years' issues to be bound together. I had the luck several years ago to get all the early issues of the Journal, so that now my set is absolutely complete and up to date. I have read them all through, and constantly re-read various articles that take my fancy. I still enjoy the tales of field trips very much indeed.

Since last writing, a few years ago, my collection has grown into a really delightful collection of unusual and rare plants, as well as all the usual plants that one sees in cactus collections. I have far more true cacti than I have other succulents. One plant may be of some interest to you—that is *Neogomezia agavoides*. I received this from Mr. and Mrs. Denis Cowper, of Belen, N. M. some four or so years ago. The plant has grown sturdy tuberous roots for me, and after budding in 1959, it finally had the bud wither away, but then in 1960 it budded and came into full flower late in the year. The flower was exactly the same colour as that of *Ariocarpus kotschoubeyanus*, and very similar, only larger. The bud, before opening, had a vivid pink colouring at the base, almost lollipop pink, where it arose from the centre of the plant.

Another rarity that I am proud to possess, is the very new, and large form of Navajoa, called *Navajoa fiskeiensis*. This has not yet flowered, since I have not had it for very long. I have a lot of *Toumeyia papyracantha*, mostly grafted. I find they are much easier grown this way, and become beautiful, many headed specimens, with dozens of really lovely blooms each year. *Navajoa peeblesiana* also takes well to grafting, and I think will become a nice cluster in time.

I am still very interested in crested plants, and now have a collection of about 100 different ones. It has been encouraging to have several of these flower most wonderfully. *Mammillaria zeilmanniana* crest had literally hundreds of bright pink flowers open at the same time last year. *M. wildii cristata* regularly blooms for me, and also *Rebutia minuscula* crest. Last year I received a marvellous crest of *Strombocactus disciformis* from Mr. Willie Wagner, and this flowered superabundantly, THREE times during the year. It is in fine condition, and I have no doubt it will be flowering away again in 1961. From the same source I have received three very lovely crests of *Ariocarpus kotschou-*

beyanus, but these have not flowered for me, though they have had seed pods in their woolly tops on arrival. The most wonderful acquisition from Cadereyta is a crest of *Ariocarpus retusus*. This plant too had dried flower remains in its crown on arrival. It is a big plant, and has rooted up easily and well . . . it comprises three heads, each of which is crested. Another gem was a flowering crest of *Homalocephala texensis* from Mr. Davis of Kerrville, Texas. About six or seven years ago I received a consignment of 20 Aztekiums from Mr. Schwarz . . . imagine my delight to find one of them CRESTED too. This plant flowers very freely along its little crest every year, as also does a double headed crest of *Encephalocarpus strobiliformis*. Many of my crests are on their own roots too. In spite of all this, I still meet cactophiles who tell me that crests do NOT flower at all.

My collection numbers about 4,000 plants, some 2,000 of which are different species or varieties, the rest being duplicates. My three good sized greenhouses are really full. In spite of this I have orders out to Mexico, France and Switzerland for yet more crests and unusual plants!!! Frau Winter of Frankfurt, Germany, has done excellent work in importing many beautiful Copiapos from South America and getting them into the trade over here. Mr. Werner Uebelmann of Switzerland lists no less than thirty of the lovely genus *Parodia* alone. Even though we Britishers cannot take a car and go on a collecting trip in Mexico, yet we can, and many do, go on a hunt through pricelists, and have a wonderful selection of plants sent to us through the mail.

One little point of interest that may help even folks in some part of the States where conditions are not unlike England . . . I have had a lot of success flowering rarities and "difficult" cases, by putting them on a high shelf, right near to the glass. A *Scleroactus intermedius* which just sat on the lower shelves and never did a thing, plumped and bloomed most abundantly on a top shelf, after I had had it for six years. *Echinocactus horizontalis* bloomed two successive years this way, and in 1960 had THREE separate lots of blooms, and set seed too with top shelf treatment. A 10 lb. weight, 11" diameter *Ferocactus wislizenii* was too heavy for a top shelf, but this too delighted me with lovely blooms and fruit in 1959, I have had this plant about six or seven years, too.

All best wishes for the future of the Journal, and for the future of the Cactus Clan . . . may their numbers be steadily augmented. England is seeing a big interest in these plants in the last few years. In spite of spines, glochids, even *Stapelia* and *Kleinia* flowers, I LIKE 'EM ALL, and just can't exist without them!

JOHN G. STRATHAM
Norfolk, England

WALTON'S CATALOGUE

The "false date" on Walton's Catalogue: an explanation by L. E. Newton.

Whilst looking for something in back issues of the Journal, I came across Mr. G. D. Rowley's note on the date of Walton's Catalogue. (Vol. 26, p.72, 1954). As he points out, the "1845" on the cover is not the date of publication. However, I was surprised to read friend Gordon's statement "What the significance of this '1845' is, I do not know." The figure is obviously the list number of the plant in the cover illustration. On page 31 of the Catalogue we see that No. 1845 is an *Epiphyllum* hybrid, which Walton calls *Phyllocactus Nankin*. I bring this point to the attention of readers not only because of its intrinsic interest, but also because it may have been overlooked by *Epiphyllum* specialists who may be anxious to list all published illustrations of named *Epiphyllum* hybrids.

Dagenham, Essex, England

DESERT FLOWERS UNDER GLASS

The story of my experiences and delight in growing and flowering Cacti and Succulents in a small glasshouse in Christchurch, New Zealand

By MARJORIE E. SHIELDS

CHAPTER 23

PARODIAS - ESPOSTOAS

These South American beauties, the Parodias, are mostly from Argentina. There are but six here, I wish there were more, for these plants are amongst the jewels of the cactus world and like jewels are not over large but are neat little plants like *P. mutabilis*, which is typical of the species. Five lovely golden yellow blossoms completely hide the crown of this plant. There is the faintest touch of bronze on the back petals while the throat is red and filled with yellow stamens in a loose bunch. The plant itself is a glorious golden ball, covered with masses of fine golden yellow spines, the central one longer and hooked, radiating from large woolly areoles. As these are closely spaced, little of the green globular body can be seen. The name *mutabilis* means "changeable, inconstant", because these plants are inclined to be variable.

Here is *P. aurispina*, also "golden spined" like *P. mutabilis*. In fact when the plants were smaller it was difficult to distinguish between them, but now they are mature the difference is apparent, for this has much smaller flowers, barely more than 1¼ inches across, just half the size of those of *P. mutabilis*. But see how many little yellow blossoms there are, the inbetween these now in bloom many more buds are forming. The stamens cling to the style while the large stigma lobes are held over them like a yellow parasol. The third golden plant as yet, with little orange yellow flowers—more yellow than orange—less than an inch across. They push through a mass of upright, fine, hair-like spines or bristles longer than the flowers themselves. These bristles rise from the crown of the plant like a brush and come from areoles filled with yellow wool. It is an adorable Parodia with no hooked spines to catch an inquisitive finger and is a very prolific bloomer, producing many flowers almost throughout the year.

The little ball of white thistledown in front is *P. nivosa*, its very name means "snowy", and its tiny green body is almost hidden under the long, white bristles, but all the same it is not too small to flower and is bravely fluttering a little fiery red blossom which is almost hidden in the thick white wool in the crown. The plant is very young, in time it will be as large as a breakfast cup, but what ever its size it will always be one of the gems of the collection. All these four plants have fine bristle-like spines

completely covering the body and on two of them fine hooked yellow spines as well.

P. sanguiflora, somewhat similar, is extremely beautiful in completely different colouring. For although this plant's green body has large areoles filled with white wool and is covered with fine white radial bristles, the white clothed body is then enveloped in a halo of very fine light reddish brown hooked spines. The "blood red" flower is a glorious colour, with wide, lightly feathered petals, the colour deepening in the throat. Even the filaments are red with biscuit coloured anthers, while the style and stigma lobes, though much lighter in colour, are still red.

The last one is *P. maassii*, a much more spiny plant. There are neither soft bristles nor hooked spines here, for its body is covered with long, yellowish brown spines, the curved centrals being much longer and with a downward trend. The brick red flowers are not very large, with stamens and stigma lobes both yellow. The plant is more appealing than the flowers, for these spines look exceedingly dangerous and say definitely "Beware!"

It has really been a little too hot for Parodias on this bench, for like most South Americans they prefer a little shade. Do you notice how the ribs on these plants are all spirally arranged and how each areole seems to have drawn the rib up into a little tubercle and perched itself on top? Strange they should all be like that. But they are attractive plants, no one could blame me for wanting more. It is said that under glasshouse conditions Parodias do not have a very long life. What a pity if that is so.

Next to the Parodias are the Espostoas, also from South America. These are found in Southern Ecuador and Northern and Central Peru. Are they dressed in their cotton-wool blankets and do they wear brushed wool berets as a protection from the cold in winter or from the heat in summer? Whichever it is their lovely wool has put them amongst the most desirable plants in the glasshouse, their tall white bodies stand out like snowy pillars. They are not difficult to grow. No pests seem to attack them; perhaps their woolly mantle is a protection. They will grow equally well in half shade or in full sun, and equal quantities of loam, compost and gritty sand with a little lime added suits them very well.

Some of them will eventually branch at the

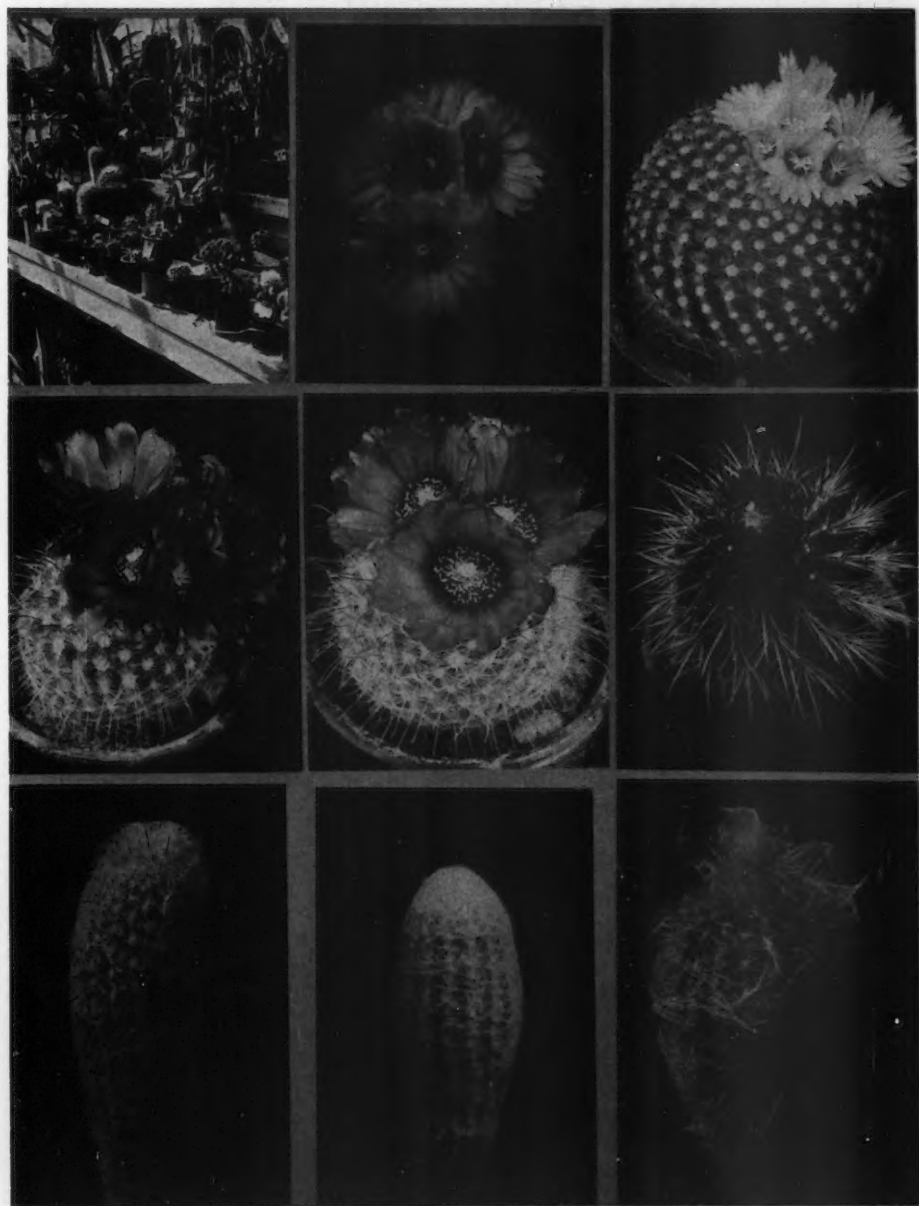


Fig. 107. Left to right. Top row: West side of center bench. *Parodia mutabilis*, *P. aureispina*. Middle row: *P. sanguiniflora*, Same. *P. maassii*. Bottom row: *Euphorbia lanata*. *Pseudoeuphorbia melanostele*, *E. huanucoensis*.

top and will produce flowers from a pseudo-cephalium at the top of the column, but others will branch from the base and will produce a pseudo-cephalium along the side of the stem, from which the flowers will appear. These are the Pseudo-espostos. That is why some of our plants have one name and some the other. Those who follow Britton and Rose simply call them all Espostas.

The tallest one here, which will grow to 3 ft. eventually is *E. lanata* from Peru, so named because the plant is "woolly, with long soft, more or less entangled, but not matted hair", and that exactly describes it. The hair could be combed, but it looks much better entangled. Uncombed it hugs the body and looks neat and tidy. The blue/green body may be glimpsed through the tangle, while the ribs are distinguished by lines of denser whiteness and clusters of short cream radials hiding under the hair. Long yellowish centrals push through—dangerously—all spines having a downward trend, the centrals fading to cream with age. Of course there are no flowers—yet! These plants are so decorative they need no flowers.

E. sericata, or *E. dautwitzii* as it should be called, is thought to be a variety of *E. lanata*. Although rather similar, it is much slower growing. It has different colouring, a decided lemon-yellow sheen. The large woolly areoles which are seen beneath the veiling of tangled hair are full of short lemon spines in thick tufts like longish glochids, all pointing downwards, as do the long centrals, the latter penetrating the hairy veil. The soft woolly head of *E. lanata* var. *rubra* may still be patted quite safely, for there are no ruby spines yet as the plant is but 4 or 5 inches high. But be careful with *E. chilensis*! Small cinnamon spines are just beginning to push through the thick white wool at the top. This is a beautiful plant with areoles full of white wool placed quite closely together and filled with cinnamon radials, so that the grass green body seen through the mist of hair appears to be striped with cinnamon.

The most striking looking one is *E. melano-stele*, one of the pseudo-espostos. Its name means "a black post"! Most peculiar! For this "Black Post" has such a thick mantle of snow it looks like a white one! The matted white wool which thickly covers the body gives it the appearance of being wrapped in wadding, and it is quite impossible to see the dark green plant underneath. This plant is fast losing its seedling beauty and as it grows it is pushing yellow spines through the wool in the crown. A pity really, as it was so nice to pat! *E. huanucoensis* is superb. It is the baby of the group and has a head of unruly white hair with a curl on top of its head. Very fine needle-like spines may be

seen through the hair which is not too thick to be combed quite easily, but it looks much more appealing as it is—unruly.

MIXED SENTIMENT

A brief editorial comment in the last Journal has brought a flood of letters. This note was titled "Not an Apology" for our scientific articles in the Journal. A few pros and cons may be of interest:

"I have just received my first copy of the Journal. It is far more than I had anticipated. After seeing so many other Journals filled with chatty, meaningless articles, it was a distinct pleasure to read the Cactus Journal."

Howard Spicer
Brooklyn, New York

"We are recent subscribers and note your account for the very technical nature of your articles by saying that competitive periodicals have fallen by the wayside because they endeavored to appeal mainly to the uninitiated. We are surely in that group and find that most of your material is far too advanced for such novices. We need information as to the likes and dislikes of these plants so as to avoid the many losses most of us experience."

John Kingsmith
San Jose, Calif.

"The July-August Journal is the best one I have seen for a long time! It's great. Keep up the good work, Scott! It is fine to have a Journal which contains all meat."

George E. Lindsay, Director
Natural History Museum,
San Diego, Calif.



Fig. 108. *Hylocereus undatus* climbing up 40 feet in a palm in Honolulu.

When you visit the Hawaiian Islands be sure to see the most beautiful garden on Kauai—"Pa'u-a-Laka". Society members Sandie and Hector Moir have devoted much of their lives to the building of this famed beauty spot. The succulent collection is beyond description in the natural setting among lava rocks.

CULTIVATED AND NATIVE AGAVES IN THE SOUTHWESTERN UNITED STATES

AUGUST J. BREITUNG

1416 S. Glendale Ave., Glendale, California

PART 17

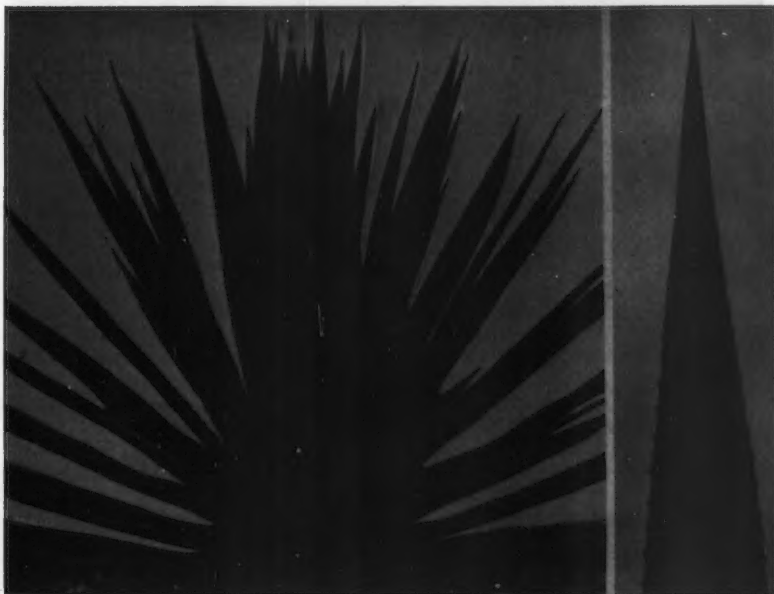


Fig. 109

Agave sisalana. Left: grown by Chester Summers, San Fernando, California, approx. 1/12 natural size. Right: leaf tip of *Agave sisalana* forma *armata*, grown by Lee Ellenwood, San Fernando, California.

SUBSERIES 2. SISALANAE, Trelease

Agave sisalana Perrine, U. S. Sen. 25th Congr. Sess. 2 Doc. 300, 1838.

Distribution: Yucatan; type cultivated in Florida from introduced plants; widely planted in the tropics as a source of fibre.

Rosette 2 to 3 m. in diameter, stemless or stem to 1 m. high; leaves sword-shaped, slightly glaucous becoming bright green, numerous, nearly flat, stiff and rigid, 7 to 10 cm. wide, 1.10 to 1.80 long, spine 4 to 5 mm. wide, 20 to 25 mm. long, short-conical, chestnut, shallowly round-grooved toward the base, not decurrent, margin typically unarmed; inflorescence 6 to 7 m. high; panicle oblong, about 3.80 m. long; flowers about 65 mm. long, glaucous-green; bulbils abundant. July-Aug.

Agave sisalana forma *armata* Trelease, Mem. Nat. Acad. Sci. 11: 49, 1913.

Distinguished from the typical species by having the margin armed with small teeth.

Agave fourcroydes Lemaire, Ill. Hort. 11: Misc. 65, 1864.

A. sullivanii Trelease in Standley, Cont. U.S. Nat. Herb. 23(1): 119, 1920.

Distribution: Yucatan; type cultivated in Europe from an unrecorded locality; widely cultivated as a source of fibre.

Rosette 2 to 3 m. in diameter terminating in a trunk becoming 2 m. high, stoloniferous; leaves narrowly lanceolate, stiff, rigid, 8 to 12 cm. wide, 1.25 to 1.75 m. long, flat, gray; spine 4 to 6 mm. wide, 10 to 30 mm. long, conical, chestnut to blackish-brown, round-

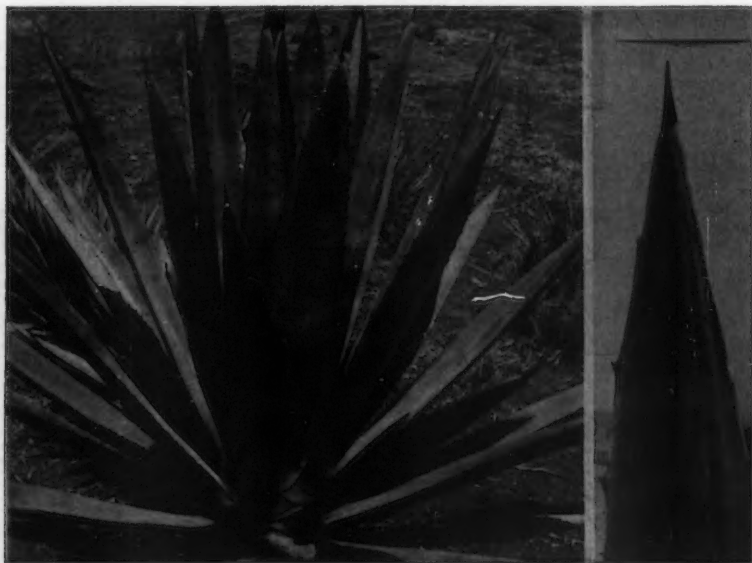


Fig. 110

Agave fourcroydes. Left: grown by Howard S. Gentry, Murrieta, California, approx. 1/10 natural size. Right: leaf tip showing spine and marginal teeth, approx. 1/2 natural size.



Fig. 111

Agave desmettiana. Left: rosette grown in the Huntington Botanical Garden, San Marino, California, approx. 1/10 natural size. Right: inflorescence terminating slender scape, greatly reduced.

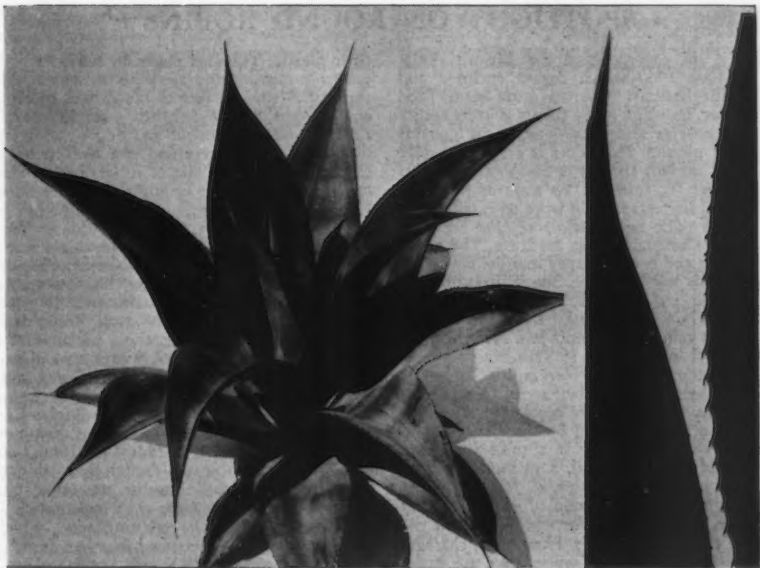


Fig. 112

Agave neglecta. Left: grown in the Huntington Botanical Garden, San Marino, California, approx. 1/8 natural size. Right: leaf tip and margin showing upper portion entire.

grooved at base; teeth 3 to 6 mm. long, 20 to 30 mm. apart, triangular, upcurved, blackish; inflorescence 6 to 7 m. high; panicle oblong-pyramidal; flowers 6 to 7 cm. long; capsules 5.5 cm. long; bulbils abundant. June-July.

Agave desmettiana Jacobi, Hamb. Gart. Zeit. 22: 217, 1866.

A. regeliana Jacobi, Hamb. Gart. Zeit. 22: 112, 1866.

A. miradorensis Jacobi, Abh., Schles. Ges. Vater. Cult. 1868; 156, 1868.

A. franceschiana Trelease, ex. Berger, Hortus Mortolensis 12: 358, 1912.

A. elizae Berger, Die Agaven, 232, 1915.

A. paupera Berger, Die Agaven, 235, 1915.

Distribution: Mexico; Veracruz, type cultivated in Europe, presumably from El Mirador, Huatusco, though said to be from Brazil.

Rosette 1.5 to 1.8 m. in diameter, stemless or short-stemmed, stoloniferous; leaves 3 to 7 (or up to 11) cm. wide, .5 to 1.5 m. long, lanceolate, glaucous with conspicuous green cross-banding, nearly straight, rather soft and pliable, slightly concave; spine 4 to 5 mm. wide, 20 to 25 mm. long, reddish-brown to dark-brown, conical, shallowly grooved or flattened below the middle, scarcely if at all decurrent; upper half of leaf margin entire, lower part with minute, nearly colorless teeth, 3 to 5 mm. apart or wholly entire; inflorescence 3 to 5 m. high including the short-pyramidal panicle; flowers 5 cm. long, green, tipped with brown; bulbils numerous. July-Aug.

Agave neglecta Small, Flora of the Southeastern United States, 289, 1903.

Distribution: Florida, the type locality where it occurs is on sandy soil.

Rosette stemless, 3 to 4 m. in diameter, stoloniferous; leaves 1 to 1.5 dm. wide, 1.5 to 2.5 m. long, gray, ascending and recurved, thick at the base, concave; spine conical, short and narrowly grooved, 4 to 5 mm. wide; 2 to 3 cm. long, dorsally intruded in the green tissue, decurrent for about its own length, lower half to two thirds of leaf margin armed with numerous close set very small recurved prickles, 1 to 2 mm. long, about 5 mm. apart, upper third of leaf margin entire; inflorescence 13 m. high; panicle 3 m. long; flowers yellowish-green, 55 mm. long. Aug.-Sept.

SPOTLIGHT ON ROUND ROBINS

Following is the excerpt from the African Violet Magazine of June 1960 which Bryant enclosed and which deals with charcoal: "Charcoal itself has no food value whatsoever. Its value to the plants is in its ability to collect and conserve ammonia—one of the marvels of the world of physics. How does it act in the soil? We put into our gardens (or flower pots) various plant foods—bone meal for instance. As soon as the bone meal is moistened bacteria start to work on it and break down its protein. The first product of this breaking down (rotting) is ammonia in its gas form. The gas is extremely volatile and easily escapes into the air and is lost. But nothing is lost in nature. She will return it to the ground in rain, but distributed over other people's land. Imagine a grain of bone meal rotting in the soil and giving off its valuable ammonia gas. Now imagine a grain of charcoal lying next to it. That piece of charcoal will absorb eighty times its own bulk of ammonia and hold it for the use of the plant roots. Observe the action of the roots when there are pieces of charcoal in the soil. The roots are attracted by the charcoal and cling to it to get the ammonia it absorbs for them. Blood meal, bone meal, fish meal, soya meal, tankage, all natural manures, compost heaps, all form ammonia as they break down. It is the ammonia-forming capacity of these fertilizers that we pay for and then allow the greater part to escape into the air. How much charcoal should one put into the soil? As much as we use of the organic plant foods, measure for measure, bulk not weight. It will not decay or wash away. The ideal condition would be to have every grain of organic plant food coated with charcoal before it goes into the soil. At the same time it will act as a continuous factory for the destruction of injurious acids. All charcoal is good including soot. Some is much better than others. The best is made from boxwood, the poorest from willow."

I am going to skip around in several Robins for some information that might be useful. A note from Jim Wegner of the Succulents Only Robin No. 2 says, "Don't know if I mentioned it but the windowed plants do marvelously well under fluorescent light. I believe it is the type of light rather than the quantity of light that does the work. Light is broken down into a spectrum of very short electrical waves, many of which are invisible to the human eye. Many of these are emitted in a greater profusion at close range rather than at long range that sunlight has."

Bob Jones in California wrote in the Window Sill Robin No. 3 to Theoda Haskell in Canada, "I don't know anything about your *Opuntia rufida* for understock (in grafting) but I do know that if you turn and root it upside down and take off its offsets, it will become thicker, thus making it easier for grafting. This is handy information to know if your *Opuntia* you are using for understock is quite thin."

Harry Barwick says in the International Mammillaria Robin No. 1, "More than ever has it been evident this year that if buds begin to show your plant must receive water to have the buds develop fully. This also applies to your plant's offsetting. Once they show offsets don't let them stand dry, for even two days may cause the young to die. I have also noticed that grafting will help a plant through a dry spell, such as being sick or going on vacation and not able to water. The scion will take moisture from the stock."

Nick Glaviano wrote from Illinois for the International Robin No. 3, "I would like to pass on a grafting trick (believe it is new) that I worked out to graft a rather large flexible piece of *Chamaecereus silvestrii* on a 14 inch plant of *Nyctocereus serpentinus*. Was using a long cutting and being flexible had trouble holding it down with rubber bands or even the holders I had made up. Solved it by using a flexible piece of

clear plastic. The cuts made on stock and scion were placed in position and pinned with spines to keep from shifting. A square piece of plastic was placed over this and brought down tightly along side the stock. Place a rubber band over thumb and first two fingers, stretch out by moving fingers and slip over scion and onto stock. Depending on size of rubber band and stock you might have to double or triple wrap it around fingers. Leave on for appropriate time. Holes can be cut in plastic for ventilation. Have tried this on cuttings and seedlings and it works great. There might be a tendency to use too strong a tension on the rubber bands and this marks or rings the stock. The *Chamaecereus* hybrid is now 4 inches long and has a cluster of 17 offsets on the base. Try it out." From the same Robin Jan Sims in New Zealand wrote, "Re taking off pups of *Echinopsis*, I had two same sized *E. multiplex* and neither had flowered, so I took all the pups off one and left the other alone, and lo and behold both flowered two flowers each." Marion Turnock in England answering Jan said, "I really haven't found that taking pups off a plant induces it to flower. Moreover, I don't like taking the pups off anything, although I do thin them out sometimes. I thinned out the numerous pups on a *Mamm. bombycina* as some were malformed. The same for a plant of *Notocactus leninghausii*, which had so many pups they were crushed together. Now they have growing room they really enhance the plant." Myrtle Coe in California, writing to Nick said, "Nick, your new idea for grafting interested me no end. I've had quite a time holding down some of my grafts and I think your method will do the trick. I have used a combination of string, kleenex, scotch tape and what-have-you. Before I forget it I must pass this information on to you folks for what it is worth. My Eppie strictum had quite a few buds this year but they all fell off before maturing. I told one of our club members, an authority on Eppis, and he said to water the plant about every two or three weeks with one tablespoon of regular household ammonia (not the sudsy kind) to a gallon of water; that it was good for all Eppies and especially those with white flowers."

From all the really fine letters of International Robin No. 5 I shall give you a sample of a team of husband and wife letter writers, Pat (Patricia) and Dave Diffenderfer from California who told of attending a local cactus club where "the highlight was a collection of slides, the like of which we never before have seen. The showing took nearly two hours. All were of cacti flowers from the slides of Bert Mueller, one of the members. After the slide show the club held a raffle. Each person brings plants if and when he can that he no longer wants. Tickets are sold at 3 for 25¢ and the raffle begins. Each number drawn gets their choice of plants left until all are gone. They also had a swap table. Pat got a pod of mystery seeds. She planted 50 of them and has had 100% germination. They are strange indeed and we'll let you know what they turned out to be as soon as they are large enough to identify. Bert Mueller had a few slides of a large garden in Pasadena. I believe the name was "Huntington" and you should see them. Great banks covered with mounds three or four feet wide of Mams. Enormous Golden Barrel clumps with 10-15 full grown plants and numerous offsets. *Cereus* that looked like jungles. As soon as we get Bessie running again (that's our car) we intend to head straight down and see. To heck with Disneyland. Is anyone interested in recipes using *Opuntia* fruit? I have recipes for a salad ring, a salad dressing, a sour cream dressing, an ice, a sauce, a punch, a milkshake, a marmalade, a jelly, a puree, freezing some, also how to pick and peel the prickly pears without getting stuck and what varieties are best.

We have plastic bags and sheets everywhere. Taking the greenhouse to the plants since we have no greenhouse. So far pretty good results growthwise, but don't know whether it is just spring or really the plastic. Our Joshua Tree (*Yucca brevifolia*) has loads of new growth. Everyone told us it would never live here. The members of the San Jose Chapter were amazed we ever attempted to grow one, but fools as we are, we got one and put it in 1½ years ago. We've never given it protection from rain or sun and we water it in summer. It's about 5 feet and has several artistic-looking branches full of new top growth."

There is only one new member to add to the Robin list this time. He is Mr. J. Reese Brown, Jr., Pasadena, California. I am happy to welcome him. Not to be forgotten, however, are those whose names are still on my waiting list for Robins of their choice when such Robins are available.

This brings me to the Robins and their needs. There is little change since last I wrote but I shall list them again and hope that it will call attention to what is available at present. It will save the need of looking back to the previous Journal. The Epiphyte Robin needs two more members. It includes all rain forest plants except Epiphyllums which are covered in another Robin. Euphorbia Robins No. 1 and No. 2 each need three members. Succulents Only Robin No. 2 needs three members. The Arranger's Robin needs two members. The Small Cacti Succulents Robin hopes to have three more members to keep it in flight. This is an International Robin and I hope some of you will consider joining it. A request for another Epiphyllum Robin has been with me for several months. I have two members on its waiting list and would be delighted to hear from others who are growing Epiphyllums and would like to join this Robin. Lastly, there is an International Mammillaria Robin having two members hopefully awaiting others to join them that this Robin may be on its first flight. Please do consider this an invitation to join one or more Robins as you desire. Robins are most enjoyable and you derive pleasure from corresponding with other members of our Society. Write me soon, mentioning that you are a member of the Cactus and Succulent Society of America. It helps if you mention also the plants you have that I may better serve you.

It is unfortunate that more of the good letters of our members cannot be used for all have something to offer. Since space is limited here are some notes taken from the Echeveria Robin. Mary MacArthur of New Zealand wrote, "I think it unlikely that the Butterfield hybrids will be offered commercially. I grew them from seed which came to this country as a gift. There is an excellent article by Professor Butterfield on Echeverias in the C. & S. Journal of America March-April 1954. At present I have *Ech. affinis* in flower for the first time. It is a good clear red and the rosettes are blacker than gunmetal, which is nearer to black than *Ech. craigeana*. In regard to Mr. Walther's book I have no recent news. If we are to ever have a book on Echeverias, I think Mr. Walther's lifetime effort is our only hope." Cactus Pappy (Mr. E. Grove Teaney) of California who collects Echeverias said in his letter, "Yes, dreams do come true, as I told you of seeing a colored slide of the Echeveria *Ballerina*, and it was so outstanding I sure wanted one, but no one could spare me one as they were so scarce. But Harry Butterfield, former dean of Agriculture at Berkeley, brought me two small rooted plants and they are growing nicely." Another item of interest, not unknown to some of us, was his fertilizer. He said, "So many ask me what kind of fertilizer I use, and as I make my own I will let you in on the secret. First take two tablespoonfuls of dried blood meal; pour hot water over it to liquify it. Then add a tablespoon Epsom salts, one tablespoonful of salt-peter, one tablespoonful baking powder and a teaspoon-

ful of ammonia. I use a glass gallon jug and to this mixture fill the jug with water. Let stand a few days. Shake often to get the contents well mixed and apply full strength. This will not burn and makes a fine quick growth. It will cost so little for a gallon—perhaps ten cents at most." Another member from New Zealand is Joyce Hillmer, whose letter was dated March 1st, and who wrote, "At present my succulents are just wonderful. The Echeverias are all looking very well and the Butterfield hybrids, that Mary wrote about, are really at their best—both in flower. One is very crinkled in the leaf formation. It is a huge plant, has gone over the edge of its 12 inch container and I will just have to find something larger to put it in. I have written about it in our Cactus Journal and have likened it to a giant endive, and that is just what it is like, although the leaves are much more succulent. The inner ones are a powdered green and the outer ones turn a pinky-tan with age. The flowers are orange, so I call it the "Orange flowered" Butterfield hybrid. The other I call the "pink flowered" one as the flowers are a lovely powdered pink. It too is a lovely plant. The edges of the leaves are not nearly so crenulated but they are broader than the first one." She went on to mention a picture of a *Zygocactus* enclosed by Charlot McCombs and wrote, "Zygos are among my favorite plants and I have quite a number of different ones—delicatum, bicolor, rosea, llewellyn, violaceum, W. A. Manda, Pink Perfection, South Orange rushii, a beautiful unnamed magenta color with very colorful leaves and a new cut called "Watermelon"."

In the Epiphyllum Robin No. 1 Irving Reimann in Michigan wrote, "Out of doors the *Pediocacti* are in bud and the *Opuntias* and *Echinocereus* appear to be beginning growth. I didn't have many losses, but strangely enough, I lost more in the bed protected by leaning windowglass than in the unprotected bed. I am surprised to see my long white-spined *Opuntia* (*trichophora*?) from Utah came through beautifully. In the greenhouse *Epi. Nayada* is in full bloom and H. S. Erwin has just finished. Nearly all of the others, even tall *Padre*, are in bud and it looks as though it will be a good year for the *Epis*. The rattails and their hybrids are blooming and *rhipsalidopsis* hybrid "Andrae" is lavishly budded . . . Lloyd's (Lloyd I. Showers) remarks about the sensitivity of some plants to light are very true. I think others respond to temperature. My indoor plants of *Echinocereus* are way ahead of the outdoor plants. The indoor ones will bloom soon (one species is blooming now), while the outdoor plants don't even show buds. I think some sit and wait for sunshine because so often after several cloudy days many kinds of cacti will open their buds together on the first sunny day." Lloyd Showers said in his letter, "My experiment with growing cacti outdoors here in this part of Arkansas did not turn out very well this past winter. I planted a 50 foot row of a number of species which grow at 4000 feet in El Paso, but find that when you combine too much moisture with low temperatures they will not survive." Mildred Wellbaum wrote from Oregon, "I think the reason we have such luck with the *epis* here is the rains we have. Lots of moisture in the air and we get some humid days in the summer and I think the *epis* like it. I have just had a sprinkling system put over the lath house where we hang the *Epis* in the summer. Two half inch pipes with sprinklers hanging down—one of them on each side of the roof. Then a pipe down by the greenhouse so I can hook on the hose and let it rain!"

The following notes were taken from the new Robin, "Yuccas, Agaves and Aloes", and are the words of Franklin Crosby, in California, who said, "Speaking of hybrids, has anyone tried to cross the yuccas, agaves and aloes? We go around swapping pollen on the aloes, gasterias and *Haworthias* because they are real

close, but I have seen very few variations in the agaves from seed except in *viciniae-reginae*. I care least for the yuccas. *Hespero-yucca whipplei* grows in profusion on our canyon walls and is easily grown from seed. The agaves present a problem of classification. The agave seed is borne in pods so like the yucca that one sometimes wonders if we are not wrong putting them in different families, maybe even different genera. Then what do we do with the agaves that produce bulbils like *furcraea*? Agaves are easy from seed, germinating quickly and grass-like. I have a lot of *Agave albicans* seed—a beautiful white or silvery. They should make beautiful plants. For the first time I have a shark's tooth (*A. unvittata* var *carchareodonta*) in spike, growing at the rate of a foot a day. I'm awaiting developments. Aloes—I could not begin to tell you about these plants because they are my love. These I collect and I hungrily await getting different varieties. They adapt themselves to our hillsides, and it is my ambition to make Crosby Ranch in Malibu, California, look like South Africa. I have been here only five years but already the mockingbirds nest in my largest Bainesi (tree Aloe). I think I have the oldest *vanbaleni* in the U.S.A. (original import by Brown) and some very fine pure species. But in my garden with so many varieties which can come into flower at the same time, our seed ends up like the original "mixed-up kid". I have a color shot of *Aloes reitzii*, *karasburgensis* and *comosa* all in bloom. All now have seed pods. Can you imagine the offspring? For you gals who have trouble with *A. variegata*, *ausana*, or what have you, I do too. My only advice, keep new ones coming along from seed. Ethel (Karr) seems to think that everyone has *Aloe vera*. I find most of my customers do not know the story behind this very valuable medicinal plant. Here, they are all in bloom—chartreuse flowers on a stiff strong spike. I just say—are you protected from fall-out burns? Then sell them *Aloe vera* (with demonstrations, of course). For you people who have to grow your aloes small, I hope you all have *A. Crosbyi*'s prolific. At the present time I have a specimen 13" ($\frac{1}{2}$ meter) across with over forty flower spikes."

I shall be very glad to hear from members of our Society who wish to belong to any of the Robins. Why not write while you are thinking of it now. We will be happy you did.

(Mrs. Gladys H. Panis,
P. O. Box 705,
Falmouth, Massachusetts)

FROM ILLINOIS

I have been a member of the Cactus and Succulent Society for two years and have only one regret, that I didn't date my subscription back to January when I became a member.

The series by Marjorie Shields is very delightful and many times helpful in selecting new plants. Round Robin, *Cereus* Speaking, and Spine Chats, are always enjoyed and looked forward to with anticipation. I also like the letters of other members, but there doesn't seem to be very many of them. I can't help but wonder if this is lack of space or lack of letters. Lack of space is understandable, but lack of letters is not. I understand the membership is close to two thousand and one letter a year from each member would be an over supply. The diaries of trips and travelogs make dreamers of us who live so far from true cactus country.

In the last issue you printed the notation stating that you were not apologizing for issues "heavy" with scientific descriptions. I don't think you should have to excuse yourself for this. They are a little harder reading than the articles previously mentioned, but all cactus fans should be interested in new species. I find the "Glossary of Succulent Plant Terms" very helpful and well worth the price. I do have a little trouble under-

standing the revisions of genera. However as I learn more of these fascinating plants, I will always have these "heavy" issues for reference.

The series "Cultivated, and Native Agaves in the Southwestern United States" is most interesting and helpful, because of it I became interested in the Agaves, and decided to add some to my collection. By looking through my journals I was able to pick out some smaller plants which were suitable for potting. It would be very nice if you were able to do this same thing with other genera.

I keep all my journals in the envelopes they are mailed in, and on the outside list the articles in that journal, this way I am able to add notes of my own beside each title. For instance, beside *Cereus* Speaking I may write *Opuntia*, *Pereskia*, and soils, then I know that this article contains remarks about these two plants and some of the writer's opinions on soils.

Raising succulents here in the upper Mississippi Valley can sometimes be difficult; the high humidity is often worse, in my opinion, than our cold winters. Many times in the winter when the mercury is around the zero mark the humidity is in the upper 80's or low 90's.

The ability of these plants to survive under the most adverse conditions never ceases to amaze me. One time I had a pot of *Mammillaria* seedlings on the front porch; during a bad summer storm a twig blew in with such force it sliced away a large piece from the base of *M. elongata*—a tiny plant less than half inch tall fell over on its side. Although I fully expected it to die I propped it up with a small rock and to my surprise it branched and now a year later it is a very sturdy little plant. I have had several other experiences along this line, such as one *Haworthia* continuing to grow for almost a year although it had no roots and wasn't potted.

Since I have only been collecting succulents for about four years I have had few blooms. Those that have bloomed for me are as follows:

Astrophytum asterias—this one loves to bloom all summer long. *A. capricorne*—has its first bud. *Gymnocalycium friedrichii*—flower is a very pretty shade of pink. *Stapelia variegata*—an odd little stinker. *Sempervivum* species—it's a shame to have to lose the plant after flowering.

I've also had some lovely flowers on Johnson's hybrids. Sometimes I pick the blooms of these hybrids and put parawax in them, this way I am able to enjoy their beauty for much longer than just a few hours of a morning.

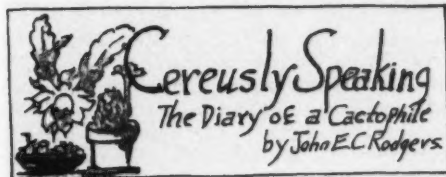
This spring my husband found some wild *Opuntias* and dug up two which I now have in my garden. One was quite large and as yet has shown no sign of growth. The other was small with just one pad but it is growing very well.

Recently we returned from a short trip to Arkansas where we observed many wild *Opuntias* growing on the hillsides and hill tops. We came home by way of St. Louis so I must mention the Climatron in Shaw's Gardens. This is a must for anyone in the vicinity, because it is really fabulous. While we were there we were lucky enough to have a little visit with Lad Cutak; although we were able to talk to him for only a few minutes as he is a very busy man, it was most enjoyable. We remarked as we left that we could spend the day talking with him about his experiences and ideas.

Donna Higgins
Quincy, Ill.

"I've enjoyed reading my Journals very much although a new grower in cactus."

Mrs. Bertha Price
Venice, Calif.



The heat of summer and the coolness of fall are mostly memories, with my winter storage problems still holding my attention. I feel that a restatement of my storage methods would be of benefit to my readers.

Some plants present no difficulties as winter storage is quite simple. I put the Aloes, Agaves, Haworthias, Crassulas, Aeoniums, Sedums, etc., in a well lighted, cool place and water only occasionally until spring sunlight is strong enough to encourage new growth without etiolation. Most *Opuntias* get this same treatment along with commoner *S. W. Cacti*.

The *Huernias*, *Echidnopsis*, *Stapelias*, *Ceropegias* and allied genera cannot be left too long without warmth, water, and light. Most of my spring losses come from winter neglect. I learned this treatment after I tried to cool, poorly lighted locations. Now I have the large plants in their favorite location during the summer and the year around. The smaller ones I hang out in partial shade (high noon) and back for winter storage where they were most happy in the past.

The *Astrophytums* are an example of good returns for a good winter location. I suspend the smaller ones from the mullions of my greenhouse in good light. Any and all will bloom if left dry from October to mid-February, then a weekly drink. *A. asterias*, *A. myriostigma*, *A. capricorne*, *A. ornatum*, and hybrids bloomed from mid-May until mid-October. *Mammillarias* do well if exposed to all the sun possible for the duration. I have written about my "baking and broiling" of my *Rebutias*, *Lobivias*, small *Echinopsis*, *Mammillarias*, *Arthrocareus*, etc., near the glass and the 100 percent bloom record. Here it is heat and not coolness which counts.

The *Pereskias* and *Pereskioopsis* are stored in a warm location with good top light and no direct sunlight on the pots. Those that bloom, do so regularly. No cold or coolness for them; they are the hardest for me both in storage and to get to flower, but I've done it.

The *Rhipsalis* problem can be stated in three words: warmth, water, and good light. The plants are resting by mid-October and hang from the mullions with activity until mid-December. From then until mid-April the flowers, small and beautiful, show that the genus is happy after a summer and fall outside.

The *Selenicereus*, *Hylocereus*, *Monvillias*, *Cleistocactus*, *Harrisias*, *Eriocereus*, etc., get in-

side treatment the year around if they are blooming size. Plenty of water during summer, good light and free circulation of air are imperative for best results. Winter storage is the same except for watering which I do about once a week. I always see that the plants are warm without too much heat especially in late winter. These plants are all in pots of loose soil and the branches of most of them are at least 14 inches away from the glass, both to protect them from summer heat and winter cold.

My columnar *Cerei* that are of flowering size, are stored in good light away from drafts with light watering during the darkest part of winter. The soil is heavy but well drained. I do not move the plants from one location to another because buds appear on the ribs of most of these away from direct sunlight or towards the lesser of the two evils—east or northeast. Storage should be carefully thought out and plants moved only into comparable light intensities. My *Cephalocereus* bloom on the same or adjacent ribs. I have not disturbed them for several years.

I use plastic containers in which to set some of the bench plants that like it hot. It helps to keep the clay pots from being cooled by evaporation. These include *Gymnos*, *Echinopsis*, *Parodias*, some *Mammillarias*, etc.

My *Zygocactus* are budded outside where I had them in semi-shade indoors. They are usually wet so not much water has to be given. I watch the humidity nearby and keep them out of drafts. The buds develop regularly. I do not want any new growth after flowering until mid-spring so I store them on the dry side. My Christmas cactus buds are showing when I have to store them. These go in the same positions as in the past years which insure good results. The storage problem results depend upon position, humidity, light, etc. A move up or down may mean more or less flowers. Humidity in the air keeps the buds from dropping; the roots can be dry and the plant looks purple otherwise.

It is always a momentous decision as to what *Epiphyllums* and *Orchid Cacti* shall be hung from the mullions. I have so many that the decision has to be made as to whether the plant has to have careful winter storage because of rarity, size, etc., or if it would miss its early flowering period if stored in the regular storage room. I have at least 50 that fulfill these requirements. They can't all get hung so I have to pick and choose.

There are at least 25 late bloomers that can take storage without any danger of disturbing their flower cycle. These I set in good light and water sparingly to prevent shriveling and let them rest. A few of the earlier flowering types I set in direct sunlight where air circulation is excellent. I have found that at least 8 out of 10

bloom profusely.

Storage is not a haphazard affair with me but a systematic reoccurrence of several years' results for good storage to insure early resumption of growth, flowers and health on into summer, fall, and winter. My record cards help to get the best results from past experience.

There are many books that help one to establish good results by authors such as Haselton, Jacobsen, Borg, Marshall & Bock, Houghton and our own Journal. When I need advice, I find it. When I check results, I find my own notes contain a wealth of information. Most of us "old-timers" have had to depend on books now out of print, both here and abroad. How fortunate we are that such a wealth of accurate literature is available to all of us. Support the Journal by giving it to a friend for Christmas. You would also find the English, Australian, and Mexican magazines helpful. Some new plants would also please a "shut-in" or any collector. Check the advertisers; they support the Journal—do you?

So for another year of *Cereusly Speaking* signs off with best wish for a Merry Christmas and a Happy New Year.

JOHN E. C. RODGERS

EDITOR'S NOTE: John has edited his columns since 1942 and deserves the thanks of his many, many friends.



QUESTIONS and ANSWERS

Conducted by
HARRY JOHNSON
Paramount, Calif.

Question: I have read two conflicting cultural rules. Some collectors advise leaving ample space for expansion of roots, of a cactus, in a pot. Others claim that their plants flower better when roots are crowded. Which is more advisable? My cuttings of various type of *Opuntia* root very quickly and appear very healthy. They have a very porous soil, plenty of fresh air and sunshine, and get good drainage. They grow rapidly but their offshoots grow very thin and spindly. What is the cause of this?

Miss Margaret Stearns
New York

Answer: The reason for the conflicting advice is due to the necessity for different cultural practices under different climatic conditions. It is simpler to control watering in small pots than in larger ones. Where you have a great deal of atmospheric moisture, a very little moisture in the

pot goes a long way. Plants do not transpire very freely, nor does much evaporation take place from the pot, with excess humidity. You could use larger pots if you were quite careful about watering. In our northern states, and of course in Europe, cultural practices are very different than say, in our hot, dry west. Also of great import are the types of cacti or succulents you are growing. Some have very strong root systems and need a reasonably rich soil, and during the growing season, a fairly generous supply of water. Others have relatively scanty root systems and do not take kindly to rich soils or excess water. All cacti have to have decently matured growth for you to expect flowers. Plenty of fresh air (good circulation, not a draft) and sunlight (preferably direct and not through a pane of glass), will mature growth to produce flowers and keep your plants normal in appearance. Also it induces normal spine production. Many species under glass or under shade never produce the heavy spination of wild plants or those grown in full sun. The *Opuntia* cuttings are etiolated because of too much water for the richness of the soil or the lack of sun. Give them a very sandy soil, less water and more sun. The growth will then stop being serpent-like and become normal. The glochid clusters will attain their rich colors, and as their growth is perennial each year become denser. Where central spines are found they will be much stouter.



Fig. 113. Want lots of little *Gasterias*? Cut the top off a plant and see what happens.

NEW BOOK LIST

The January Journal will announce the 1961 Book List of Abbey Garden Press.



Fig. 114

Views of R. H. Diehl's cactus garden in Vista, California. Left to right. Top row: *Echinocactus grusonii*, *Mammillaria hahniana*. Middle row: *Mammillaria mystax*, *Ferocactus covillei*. Bottom row: A mass of Golden Barrels, *Cephalocereus chrysacantha*.

Culture of Succulents in Ohio

By VICTOR H. RIES

Extension Floriculturist, Ohio State University

The poinsettia has become one of the symbols of Christmas to many, but unfortunately efforts to grow them in our homes are all too seldom successful. Those purchased from the florists at Christmas have an equally disastrous end—bare stems with no leaves. Possibly a glance at its background will give us a better idea of its requirements. The poinsettia has the scientific name *Euphorbia pulcherrima*. It is found growing wild in moist, shaded places of tropical Mexico and Central America and consequently prefers a warm, humid atmosphere during its growing season.

Euphorbias or spurges are a large genus of plants with a wide variety of forms. All in all, there are between 700 and 1,000 species scattered through the temperate as well as tropic zones of the world. Many euphorbias are succulent and resemble cacti. Many of them are desert plants. Many of them have a milky juice. The juice of some is poisonous to touch. Snow-on-the-Mountain has this effect on some people.

Hardy spurges that can be grown in Ohio gardens include Flowering Spurge (*E. corollata*), Cushion Spurge (*E. epithymoides*) and Cypress Spurge (*E. cyparissias*). The Mole plant (*E. latyrus*) is an evergreen biennial that is occasionally found in Ohio gardens.

Annuals that often self-sow are Snow-on-the-Mountain (*E. markinata*) and annual Poinsettia (*E. heterophylla*). House plants include the Crown of Thorns (*E. splendens*).

The spurge flowers are relatively inconspicuous but are surrounded by bright colored bracts. The bracts may be white, yellow, pink or red, but few have ever noticed the tiny green and yellow flowers in the center of the mass of bright colored bracts. Poinsettias may be red, pink or white.

The poinsettia is propagated from cuttings taken from early spring until early summer, depending on the size of plant and size of bloom desired. They are difficult to root, so most people buy their first poinsettia and then try to keep it alive from year to year.

Drying Off. After the poinsettia plant drops its leaves, which usually is in January or February, remove one-half of the top-growth of the plant, stop watering and place the pot in a warm cellar. Water the pot every 2 or 3 weeks; just enough to prevent the wood from shriveling.

Starting New Growth. In late April or early May remove the plant and discard the old soil. Repot in the same pot in fresh soil. The soil mix-

ture should consist of three parts good garden loam, one part well rotted manure, and one part sand. Water the soil after repotting and keep in well lighted room until early June. If the manure is not available, use rotted leaves or peat moss. Mix a level teaspoon of commercial fertilizer with each 6" pot of soil.

Outdoor culture. Plunge the pot to the top outdoors in the garden in early June. Be certain to place in full sun and with ample room so that no crowding from other plants is possible. The branches may have their tips removed up until early July to make them branch and give more but smaller flowers.

After the plant starts growing, fertilize every 3 to 4 weeks with either a liquid chemical fertilizer or a regular commercial fertilizer. Use 1 level teaspoon to a 6" pot, less to a smaller, more to a larger pot.

Fall and winter treatment. In early September before temperature drops below 60° lift the pot and bring into the house. Place in a location where there is the maximum light and the night temperature remains near 60°F. Water the plant daily but do not allow the soil to become waterlogged. Sudden changes in temperature, like drafts, chilling, open windows or gas from stoves or gas logs in fireplace, or irregular watering are all detrimental to good growth. Poinsettias are far more sensitive to irregular watering than most other plants. Any of these forms of mistreatment may cause the plant to drop its lower leaves.

Failure to bloom. The poinsettia is a short-day plant that will not bloom when the days are long. Keeping the plants near an electric light at night may lengthen the day sufficiently to prevent their blooming.

Pests. Mealy bugs (white cottony insects) may be controlled by applying rubbing alcohol on the pests. Make a brush by rolling a little cotton on the end of a stick and then moisten it in alcohol. Touch each mealy bug with the alcohol, being careful not to get too much alcohol on the plants.

NIGHT BLOOMING CEREUS is a name given to several different kinds of cactus which bloom at night, which accounts for the variation sometimes noticed in the plants that different people have. Although the scientific name is not too important, the one most commonly grown is *Hylocereus undatus*, a native of Tropical America. The other two most common ones are *Selenicereus pteranthus* and *Nyctocereus serpentinus*. Both of these are natives of Mexico. There are

other wild species of all three of these genera which may be encountered in cultivation. It is extremely difficult for the layman to distinguish between these different forms of Night Blooming Cereus so you had better be satisfied with calling them by just their common name.

Although some forms of Night Blooming Cereus are more or less trailing, other forms are climbing, and in their native habitat they will be found clinging to the trunks of trees, rocky cliffs or even buildings. Like all other forms of cactus, they will grow with a minimum of care. If properly grown, relatively small plants should have at least one bloom. It is not uncommon to have large plants in 12-inch pots or tubs with 15 to 25 flowers.

Watering. is relatively simple since they will only be watered about once a week except during the period when they are in bud and in bloom when they can be kept moist as other plants.

They can be kept in a cool sunny window during the winter and put out-of-doors in partial shade during the summer.

Potting. The use of gravel or broken pots in the bottom of the pot is not necessary, if watering is done carefully. Its main value is for greenhouse culture, where everything is watered with a hose. When potting, set the plants the same depth in the soil at which they were growing before. Deep planting may rot the base of the plant. Always leave a quarter-inch to $\frac{1}{2}$ " between the top of the soil and the top of the pot for watering. They may be potted in any good garden soil. They do not need a very large pot and will probably need repotting not more than every two years at the most. Always mix fertilizers with soil when potting, using a teaspoon of a 4-12-8 complete fertilizer to a 6-inch pot of soil. A half teaspoon to a 6-inch pot and 1 teaspoon to a 10-inch pot may be given as the buds form.

Pests. White cottony masses on the leaves and stems are insects—mealy bugs. Spray three times at intervals of ten days with Malathion. Mix according to instructions on bottle.

Scale insects. Small brown scales on plants. Use same control as for mealy bugs.

Propagation. Cuttings of stems 3 to 8 inches long may be rooted in sand or even in soil. These new plants should bloom by time they are 2 years old.

THE CHRISTMAS or crab cactus, although easily grown as a house plant, is all too seldom satisfactory because of a lack of knowledge of its culture. Surprisingly few gardeners realize it is a native of Brazil, where it grows on trees, similar to many orchids. This does not mean it is a parasite like the mistletoe, for it merely uses the

branches of trees as a place to grow, none of its nourishment being obtained from the tree. Despite this habit it is usually grown in soil like other terrestrial plants.

For those who may be interested in checking the Christmas Cactus in some encyclopedia, its scientific name is *Zygocactus truncatus*, although many catalogs list it as *Epiphyllum truncatum*. According to Bailey's Cyclopaedia of Horticulture, the various varieties of Christmas Cactus are probably hybrids, possibly between different species of *zygocactus*, *epiphyllum* or with some other closely related genus of cactus such as *cereus*.

Culture. Like all the other kinds of cacti and succulent plants, the Christmas Cactus will grow in any good garden soil that is not a heavy clay, but a soil made up of equal parts soil, sand, and peat (or leafmold) will be better. Being more or less air plants or epiphytes as the botanist calls them, they do not need large pots. In fact, will probably do better in relatively small pots. Like all plants of this group, they are used to long periods of drought. Give the plant very little water until the buds start to appear. The time will vary according to the variety, some being fall blooming, some Christmas, and some early spring blooming. After blooming, ease up on the watering. Set the plant out-of-doors for the summer and forget it. Some even place the pots on their sides so the plant will not get any great amount of water. In September before danger of frost, bring the plant indoors and give it a small amount of water not oftener than once a week. Although most cacti and succulents require full sunlight, the Christmas Cactus will thrive with much less sun.

Fertilization. Again like all so-called air plants, the Christmas Cactus requires but little fertilizer. Mix a level teaspoonful of a 4-12-4 complete fertilizer to a 6-inch pot of soil when potting. A quarter teaspoon to a 4-inch pot may be given as the buds form.

Pests. The most common pest is the mealy bug, a white cottony insect which once established multiplies quickly. There are usually one or two somewhere on your plants. Washing the plant regularly once a month with a sponge or soft brush will keep them down. Once started a drop of rubbing alcohol applied with a very small brush or bot of cotton on a toothpick will kill those contacted. However, you usually miss the babies who soon grow up. So repeat every two weeks until no mealy bugs are left.

Propagation. Pieces of so-called leaves (actually the stems) consisting of one or more sections may be rooted in sand or sandy soil. This may be done at any time.

Christmas Cactus may be grafted to make tree

forms on stems a foot or more in height. This is done by inserting a section of the stem into the split end of a stalk of the Barbados gooseberry

(*Pereskia*) or almost any other upright slender stemmed cacti. Hold in place with a tack or thorn.



Fig. 115. Steps and materials in binding your own pamphlets.

Binding Your Own Journals

By J. REESE BROWN, JR.

For years I have been subscribing to a number of magazines which have permanent value (such as the Cactus and Succulent Journal of America) and my library was becoming a cluttered mess of loose magazines in stacks. Not only was it unsightly but it was becoming impossible to find any particular issue. After much searching for a means of conveniently and cheaply solving the problem, I finally stumbled on a technique for binding magazines and loose sheets of paper. This technique has the advantage that you don't have to wait until a complete volume is on hand to start the binding. It can be started as soon as

two issues are received and each new issue added as it is received. When the volume is complete, the hard covers and final details are added.

The secret of the binding technique is a plastic glue called "Bind Art Cement" used by libraries. The first step is to collect all of the magazines (or loose papers) which are to be bound together. These should be checked to make sure that all of the pages are held by the staples. If some have torn loose, they should be sewn in or new staples inserted to hold the loose pages.

These are stacked with their bottom and right hand edges lined up even. They are then clamped

between two stiff sheets which are slightly larger than the magazines being bound (see figure A). Two pieces of $\frac{1}{2}$ " plywood and two C clamps work nicely here. The magazines should be positioned so that the backs protrude about $\frac{1}{4}$ " from the plywood.

A thin layer of the glue is then spread along the backs and worked into the cracks. After the first layer is dry (about 2 hours) a second thicker layer should be spread on and allowed to dry. The bound magazines are then removed from the clamps and covers put on.

The covers can be made of any kind of stiff board. Brown pressed-board makes durable covers and is readily available from any commercial stationer. The covers are cut about $\frac{1}{8}$ " longer on 3 sides than the magazines. The covers are lined up along the back edge with the magazines and clamped again with the backs protruding about $\frac{1}{2}$ " from the boards. A strip of gummed cloth tape of the proper width is glued across the back and over onto the covers (see figure B). This forms the outside part of the hinge. The tops should go down on the covers from $\frac{1}{2}$ to 1 inch. After the glue has dried (15 minutes) the boards are removed and one cover opened out flat. Another strip of cloth tape glued to the inside of the cover and outside page in the volume to form the inside part of the hinge (see figure C). This is repeated for the other cover and the excess tape is trimmed.

The binding is now complete and the titles can be applied to the front and end of the volume.

To bind loose sheets, the same procedure is followed except that the sheets should be lined up along the left hand edge before clamping them together. Extra care must be taken to make sure that the glue is thoroughly worked in between the edges of the sheets. This can be done by loosening the clamps slightly while applying the first layer of glue.

If the magazines to be bound vary too much in size, they should be lined up along the left edge and the right edge trimmed later.

In the foregoing procedure I have described only the simplest form of binding. A reasonably handy person will see ways to use the same basic technique to do a fancier job such as sewing, crinoline reinforcement and cloth covered covers.

The materials required are available as follows (see figure D):

1. Bind Art Cement—Bro-Dard Industries, 59 E. Alpine St., Newark 5, New Jersey or 1888 S. Sepulveda Blvd., Los Angeles 25, Calif. Available in 12-oz. bottles for \$1.95 or 32-oz. bottles for \$4.50.
2. Covers — Brown pressed-board — three thicknesses available 12, 20 and 30 gauge. The 20 or 30 gauge should be used—avail-

able from most commercial stationers.

3. Cloth binding tape—available in 1, $1\frac{1}{2}$, $2\frac{1}{2}$, and 3 inch widths with pressure adhesive or gummed. Several colors available. The gummed adhesive is satisfactory and much cheaper than the pressure sensitive "miracle tape".

PRESIDENT'S MESSAGE

The last issue of the "Journal" for 1961 brings you a report on the activities of the Society for the year. We have held four Board Meetings with another slated for December, with most of the business of the meetings concerned with the convention held in Mexico, July 12 to 18. Besides the convention, one of the finest ever held by the Society, we had two very fine special events, under the direction of Don B. Skinner, Chairman: The first, Sunday, May 21 at Huntington Gardens, and the second, Sunday, June 11, at Madam Ganna Walska's famous "Lotusland". The Annual Meeting, held September 17 at the Tegelberg Gardens in Lucern Valley was the largest in attendance we have ever had. We also have the largest membership at this time that the Society has ever enjoyed. I believe we may all be very thankful for a fine year.

It will soon be time for renewals of membership in the society, remember your subscription money goes to Editor Scott Haselton—who started the Journal and has financed it for 33 years. Any sustaining membership fees go to our Secretary, Mr. William Bantly, 18317 Farjardo, La Puente, Calif. I am sure the members understand that the only money the Society gets for the operation of Society business is that sent in for Associate and Sustaining memberships. When one considers that the ballots sent out to members cost the Society about \$130.00, then one can see the need for as many members as possible to send in sustaining membership fees of \$1.00 or more and for as many members of an active member's family to send in their associate membership fees of \$1.00. Let's keep our Society big and active.

Affiliate Societies should have received notices to renew affiliation with the society early in October. This notice goes only to the Affiliate Director of the affiliate, so if any club or society feels they have been neglected in this matter, they should check with their Affiliate Director and every club or society is required to have such an officer. It is an unfortunate fact that several affiliates have lost contact with the National Society because they neglected to elect or appoint such an officer, or if they have, they selected an untried person who failed to keep contact with us. Please elect or appoint someone who will maintain an active contact with the Affiliate Secretary of the Society, Mrs. Murray Skinner, 8627 Denver Avenue, Los Angeles 44, Calif. It doesn't matter if this person holds another office in the club or society or not. Just get someone who will maintain this very important contact and if they prove out, hang on to them. Another way to help maintain contact with the National Society is to be sure to send BOTH the Affiliate Fee and THEIR Journal Subscription to our Affiliate Secretary, who reports that at this date we have 29 affiliates.

Yours for a bigger and better Society,

EDWARD S. TAYLOR, President

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The request for the Colorado natives was received by Mr. M. Walter Pesman, editor of the Botanic Garden's "Green Thumb," from Director Monsieur Vatrician, and was referred to the Cactophiles for action.

Plants will be taken from the Cactus Garden, and donated by members from their private gardens. Obtaining replacements will be a good excuse for several field trips next spring.

Edgard P. Sherman

Corresponding Secretary

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